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Citrus Crop Estimate

By W. W. Yothers

Citrus Crop Estimate

It is well known that it is very difficult to estimate the final yield of a crop accurately three months or more before it is matured. This is particularly true in regards to citrus fruits. If the forecast is made in September the fruit may or may not grow from 1 to 2 sizes larger depending upon favorable or unfavorable weather. If the weather is favorable most of the fruit will get at least one size larger and some of it 2 sizes or 12 1-2 and 25 per cent respectively. As yet no one can predict the weather any great time in advance. Hence one can not predict how much a crop will grow in three months. The science of crop estimates however has reached a marvelous state of accuracy in spite of the difficulties and many crops are estimated so accurately that one living a few years back would accuse these estimators of witchcraft and they would be put to death.

It is advisable at this time to present a short study of the forecasts made for Florida and California citrus crops. The percentages of error have been figured from official forecasts and production figures. The Florida production figures do not take into consideration destructive winds, frosts or any unusual weather conditions that might reduce the yield after the forecast was made. Neither

is local consumption or truck movements taken into consideration. Only the freight and express shipments are considered in final production figures. On the other hand the production figures for California do take all these into consideration.

Year	Florida Percent of Error	
	September forecasts	
	Too low	Too high
1918 - 1919	7.41	
1919 - 1920	21.6	
1920 - 1921		2.27
1921 - 1922		2.25
1922 - 1923	11.24	
1923 - 1924	1.96	
1924 - 1925		14.5

Year	California Percent of Error	
	October Forecasts	
	Too low	Too high
1918 - 1919	10.45	
1919 - 1920	16.0	
1920 - 1921	6.0	
1921 - 1922	28.88	
1922 - 1923	3.33	
1923 - 1924	0.36	
1924 - 1925		

December Forecasts		
1918 - 1919		8.1
1919 - 1920		
1920 - 1921	15.11	
1921 - 1922	1.64	
1922 - 1923	21.76	
1923 - 1924	5.2	
1924 - 1925	0.36	

In the Florida forecasts it will be seen that during four years the September forecast was too low and three too high. The October forecasts of the California crop gave every one too low and one as low as nearly 29 per cent. The December forecasts of the California crop gave only one year too high. During the six years

that the forecasts and production figures can be compared the percentage of error for the September forecast for Florida is less than the percentage of error for the October California forecast 4 years and greater for two years. The December forecasts for California give the percentage of error greater in 3 years and less in three for the corresponding year in Florida. The Florida production figures for 1924-1925 do not take into consideration the more than a million boxes blown off by the severe storm. The California crop for 1922-1923 followed the freeze of January 1922 and the damage to the trees was very much over estimated. The crop was on the inside of the trees and was not seen by the growers or estimators.

It seems to me that the Florida estimates are most marvelously accurate considering the lack of facilities in compiling them. Especially is this impressed upon me when I realize that during the year 1924-1925 the Independents were also far away in their forecasts and also that one sub-exchange of the Florida Citrus Exchange was 17 per cent too high. One association was 48 per cent too high. Just think of such errors among groves in which they knew the production figures for 20 years! It also makes one feel proud of the Florida forecasts when one realizes that the California forecasts have been compiled with the help of the marvelous machinery of the California Fruit Growers Exchange. If forecasts could be more accurate California would have them you can rest assured.

The "Eye Appeal" In Fruit Merchandising

By E. J. Clary, Merchandising Consultant

Due, no doubt, in a great measure to the fact that 16,000 cafeterias are engaged in selling fruit and fruit products to 7,000,000 consumers on the basis of open display—purchase on sight—the "eye appeal" as it has come to be known has been recognized as a powerful selling force by fruit growers and packers doing business under brand names and who are appealing direct to the consumer.

In fact, all the food trades whose products are such as to lend themselves to visual exploitation are finding the present advanced stage of color reproduction in natural colors a powerful medium by which the cafeteria idea can be carried further.

Fruits of all products appeal most strongly to the eye and this basis of selection is the moving one with the consumer. Packers engaged in national advertising and brokers clearing crops under advertised brand names are using natural color reproductions in their printed matter with telling effect as are the canners and collective fruit marketing associations.

Every grocer and fruiterer is aware of the fact that fruits sell most rapidly when on display which are most appealing to the eye. Even the fruit stand owner recognizes this fact. Restaurants are displaying fresh fruit in their windows to tempt the passer-by. Printing craftsmen are reproducing apples, peaches and pears on the press which are more alluring than the real thing.

The most outstanding advertising campaigns in the trade, where the consumer is directly appealed to take full advantage of this visual selling appeal and the success of some of these efforts have proved beyond any doubt the efficacy of the principle.

The vast strides made in lithography and in color type work by the American printing crafts makes exact reproduction of food products easily possible, on car cards, in magazine advertising and in merchants displays.

Tests Prove Color Value

The largest advertisers in the trade who have developed this eye appeal principle in stimulating consumer demand have ample evidence of its power in the response to such reproductions.

The food producer these days has

learned to say less about his products and to show them more, at the same time taking advantage of the growing habit of the American people to see what they eat before they select it.

There are ample representations on the counters of cafeterias of the trade's products and every day millions of people are "sampling" these products and paying for the samples. Cafeteria owners are fully aware of the advantages their open displays of prepared foods have in competing with the table restaurant where the purchaser selects from a printed menu card and takes a chance on the quality of the food that will be placed before him.

The reproduction of these same prepared foods by color printing process and lithograph goes a step further and permits the producer to place his stuff before millions of consumers who do not habitually patronize the cafeteria.

If the visual method of merchandising food to the consumer is to be the dominant one, it will require close study on the part of those firms who are aiming at national distribution under brands.

The cafeteria has been mentioned here as the leading factor in forwarding the merchandising of foods through the visual appeal. But this idea is going further than that. The soda fountain and the bakery recognize the value of a display which will permit selection by the customer. The delicatessen and the fruit stand are all making a play to catch the eye of the prospective purchaser.

Suggestion A Powerful Factor

Many of the largest foods producers have reason to believe that their reproductions of products in color inks serve to suggest to millions of consumers the desirability of the dish or product revealed and that actual sales are the result. A cold verbal description of the same product on a car card or magazine page would not have the effect at all. Furthermore, modern color printing can outdo the best looking of our quality products. It is possible to make the food even more attractive to the eye on the printed card than it is in reality.

That is one reason why the business of natural reproductions of pre-

pared of foods is taking up so much time among designers in the mechanical arts.

Thousands of food shops, food purveyors, doing business direct with the consumer are finding in the new food reproductions a more alluring appeal than they can get with the real thing on display in the windows. All of these new food reproductions, the work of plastic artists, are merely another step forward in the big idea of selling food through the eye appeal.

The producer of a basic food product, used in recipes by restaurants, issued a booklet of a hundred pages two years ago consisting largely of text matter and with no illustrations to speak of and none in color. Last year he brought out the same recipe with color plates, showing exactly how some of these dishes look when prepared and the demand was fifty times as great. The cost was more than offset by the results in larger sales due to the lure of the color printing reproduction by which the chef could see in advance what the food was going to look like when actually prepared.

There are many ways in which the trade can and is using the eye appeal in stimulating demand. It isn't by any means the cheapest appeal but it is the most effective by far.

Experience In Cafeterias

Progressive cafeteria stewards know that those foods which appeal to the eye sell many times more rapidly than those which do not. The proper display of foods is the biggest factor in making for success or failure in the cafeteria business. In fact, the whole business is built around it.

BEAUTIFUL FLORIDA

Stretching off to the horizon—as far as the eye can reach—a vast expanse of beautiful water, shimmering in the dancing light of the warm sunshine, rippled by refreshing breezes or lazy and calm under exquisite tropical moonlight.

Picture this practically at the front door of your Florida homesite surrounded by charming parks and graded lawns laid out along the water's edge in front of a wonderful beach.

Citrus Fruit - Cultivation

CITRUS COMMENTS

BY

**R. E. Lenfest, Manager Horticultural Department
Orange County Citrus Sub-Exchange, Orlando**

Developing Young Groves

The first thing is to choose the location of the grove. If possible the land should not be too far from a good road and from an Exchange packing house. The land itself should be of good quality, well drained, have good air drainage and if possible lake protection, though the latter is hard to get hold of.

Clearing

Be sure that a thorough job is done and all stumps and roots removed. Then plow thoroughly and level off with a disc. An Acme harrow following the disc will put the soil in still better condition but is not absolutely necessary.

What to Plant

As soon as it is decided to plant a grove the varieties to be set out should be decided upon and the order for trees placed. If possible, visit the nursery and make sure that the trees you are to get are good and healthy.

The early and late varieties have the advantage of generally bringing the best prices. The midseason and early varieties are generally out of the way before any danger from cold weather.

Do not run after this or that special and more or less untried variety. Stick to a standard variety of proven worth for early, mid-season or late fruit.

Staking The Land

The distance the trees are to be set apart should be determined. The three most common distances are 25x25 feet 20x30 feet or 25x30 feet. The way to decide is to visit bearing groves set at the above distances and determine which you like best.

The use of wire about 300 feet long with the planting distance marked on it with tape or solder will make the staking quick and accurate if the land is fairly level.

Planting

The fibrous roots of the young trees should never be allowed to dry out and should be moved from the packing case or wagon and set as rapidly as possible. The holes should be dug just in advance of the planting leav-

ing the stake in the center of the hole.

Clip off any bruised or withered roots, remove the stake and place it across the hole. Put the top root in to the stake hole and keep the crown roots even with or slightly above the top of the stake. Pull the dirt in a little at a time and spread the feeder roots out so that they are nearly in normal position. Keep filling in and arranging roots till the hole is filled. Then make a basin around the tree into which pour at least two buckets of water to wash the soil down around the roots. Pull the ring in toward the tree and pack the soil with the feet.

The trees should be watered every week or ten days if there is not sufficient rain. It is very important to watch the soil moisture.

Fertilizer *Citrus Fruit*
If the planting is done in January or early February the first application should be the latter part of February or early March. The analysis should be a 4-8-3 with at least half the ammonia from organic sources and the amount should be 1-2 pound. The next application should be in May, another 1-2 pound of 4-8-3.

The next in July of 1-2 pound to 3-4 pound of 4-8-3 and the fourth in September of 3-4 pound of either 4-8-3 or 3-8-5 depending on the condition of the trees.

The cultivation should start with the first application of fertilizer and continue until the rainy season. It is a good plan to let the cover crops start in the cultivate strip and then work it down in a few weeks and keep the strip worked till fall.

There is little need of any pruning of young trees other than removing root sprouts and also buds that are within 4 or 5 inches of the ground if the top is of good size above.

The fertilizer the second year should start in at 1 pound and increase up to about 1 1-2 at the last application. The third year can start at 1 1-2 and increase up to a little more than 2 pounds.

Each application of fertilizer should be spread just a little farther

from the tree than the previous one for the roots run out surprising distances in a very short time.

The table below gives the number of pounds per tree, per year and may prove helpful.

First year	2 1/2 to 4 1/2 pounds.
Second year	4 to 7 pounds.
Third year	6 to 11 pounds.
Fourth year	9 to 14 pounds.
Fifth year	11 to 16 pounds.

To be able to work up to and use the larger amounts the tree must be vigorous to start with and never have any set back. In addition the fertilizer must be spread very carefully and covering a wider area than is ordinarily done. Then too the type of tree, type of root stock and type of soil enter into the matter. Keep the trees in a healthy condition but not in a dieback type of growth.

Spraying

Be sure to keep watch of the trees not to let insects, particularly scales, get too much of a start.

Citrus Scab

In general the amount of scab has been getting somewhat less the past few seasons. Indications are now pointing toward the possibility that there will be an increased amount of scab on this coming seasons crop.

For the average conditions the following spray schedule will help reduce the amount of scab on the grapefruit.

Spray with home made 3-3-50 Bordeaux to which is added the regular amount of some good oil emulsion. Use this just before the growth starts. In place of this Lime-Sulphur 1-40 will give at least fair results.

During the bloom use Lime-sulphur 1-40 and then following two or three weeks after the bloom Bordeaux-oil as stated above.

In using Bordeaux-oil for scab cover thoroughly all the foliage and young fruit if present but leave the trunk and inside branches unsprayed.

Keeping Records

Another suggestion which applies not only to fertilization but also to all phases of grove work, is the mat-

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Birds-Eye View of the Orange and Grapefruit Business

Being the First of a Series of Lectures by A. M. Pratt of Chase & Co., Orlando, Broadcasted from Winter Park Station WBDO, February 9, 1926

I have been asked to briefly give you tonight a birds-eye view of the orange and grapefruit business. That's one of those simple, easy things that is hard to do. I don't know where to start or what to shoot first. I'm like that "very small boy who was standing in the middle of a country lane with a large shotgun, when a stranger came along and asked him: "What are you hunting, little man?" "I dunno," answered the little fellow, "I ain't seen it yet." I don't know what I'm going to shoot, but I'm going to shoot something.

The oranges you eat come almost entirely from Florida and California. You knew that! But I have talked with people that did not know whether they were eating Florida or California oranges. I got to talking with a chance acquaintance on the train about oranges and asked if the orange mentioned was a Florida or California. She said, "It must have been a Florida orange because it was in January and California oranges aren't ready until much later in the year, are they?" I told her that Florida usually starts shipping her oranges during the latter part of October or first of November, and that California starts only two or three weeks later. Of course Florida usually has more oranges at the fruit stands and stores during November, December and January, as well as February and March, because her crop is earlier and Florida has to move her crop faster. But both kinds are on the market from December to May, with California being the only ones that are usually found from June on to November.

"Then how do you tell the difference," she said. "Well, the Florida orange tastes sweeter and is more juicy and has a thinner skin, and most people prefer it to eat. The California orange usually has the average Florida beat for looks, is a brighter, deeper color, but thicker skin, more raggy inside and peels more easily. Until they start their Valencias in May or June, Californias are usually seedless because of being the Washington Navel variety.

"What do you mean by a Valencia?" "That is an orange which matures later. It isn't in fine eating condition until March or April."

"Does Florida ship Valencias too?" "Yes, about five or six thousand cars a year?"

"How is it that I can buy oranges most any time in the year. How do you keep them so long?" "We don't keep them—we just let them hang on the trees." "Do different oranges keep getting ready to ship at various times of the year? Are part of the oranges ripe and part green?" "No—practically speaking, the oranges get in good eating condition all at the same time but they are-n't like peaches and pears or even apples, as oranges hang on the trees until they are picked with only a few that drop during the Spring when the buds come and the groves are in bloom."

"Do you mean that while the ripe oranges are on the trees, those same trees bloom and start the little oranges for next year?" "Exactly." "Isn't that strange—I'd sure like to pick some oranges from a tree and pick some orange blossoms at the same time." I answered that she could not only have that pleasure in an orange grove but later on in a Valencia grove could see the old crop patiently waiting to be picked, and the new crop green but nearly grown to size, and said that that was one of the things that makes oranges so delightful and healthful. They weren't artificially preserved by cold storage like so many other fruits, but that everybody could get them in their fresh original condition. They were colored and ripe when picked instead of being compelled to harvest the crop in partially matured condition like peaches, pears and bananas.

Maybe you knew all these things—but I have had many men, women and children ask similar questions, so passed this on to you.

By the way in attempting to tell you the difference between a California and a Florida orange, did you happen to read about the fellow who said—"How can I tell whether a politician is lying or not?" "Simply listen and learn if he is talking." But I am trying to give you facts.

Between Florida and California we ship when the crop is larger a hundred thousands cars of citrus fruits. That may not mean much, but when you realize that each car contains

about 450 boxes in California and 350 boxes in Florida, and each box averages about 170 oranges to the box, it may mean more. A carload will contain about 65 thousand oranges.

Grapefruit is so much larger that a carload contains only about 17 thousand grapefruit. Most people eat only half a grapefruit at a meal. To eat a carload of grapefruit, at one sitting it would take every man, woman and child in Orlando, Florida, a city of about 34 thousand, to finish a car at one meal. Yet Florida ships cars from October to May every year.

One of the things you would be surprised to learn if you talked with a grower in Florida is that in a year like this where grapefruit runs heavy to large sizes, the larger the grapefruit the less the grower gets for it. Take these great big luscious grapefruits that are so big that only 28 or 36 can be squeezed into a box, how much do you think the grower gets for each grapefruit? Make a guess. He has averaged so far a cent or two cents a piece. The negro who picks these specially large grapefruit gets about a fifth as much as the grower does. The more medium size grapefruit like those that pack 64 or 70 to the box nets the grower from 3 to 4 cents apiece. You, on the contrary, pay more for the large grapefruit and less for the small. Why this is true and what changes can be made to remedy such a disproportionate situation, we will talk over some other night.

But this large size idea brings up another point that isn't generally understood. When grade is mentioned most people think it means size. This is incorrect. All oranges and grapefruit are sized by machinery, with each size being about an eighth of an inch different in character. But before it is run over the sizer, it is graded as to looks—that is color, shape, thinness of skin, blemishes on the skin, etc. The best grade in Florida is known as Brights, the next best as Goldens. There is no difference in eating quality but the Bright orange is simply brighter color and more attractive to the eye.

Speaking of grapefruit being so attractive to the eye and good to eat,

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Double-Blossom of Blackberry

By G. F. Weber

There has been considerable uneasiness manifest among growers of small fruits, such as dewberries, blackberries, etc., because of the appearance of a condition of these plants known among the growers as double-blossom. This is a disease which has been increasing in severity and in general distribution during the past few years. Since the extensive planting of the Marvel blackberry, it has been reported as being severe in certain localities in the state on this variety. If no precautionary measures are taken in an endeavor to check the spread of this disease there is a possibility of it becoming so severe as to cause considerable losses and even to endanger the growing of these fruits.

Past records show that the disease has not varied in abundance in a certain locality from year to year, but rather becomes more severe until affected plants are worthless. This disease was first observed on the Experiment Station grounds during the present season by Harold Mowry.

Symptoms

In Florida the first symptoms of the disease appear at blossoming time, the blossoms being the only parts affected. The sepals and petals become thickened to such an extent that casual observers notice only a large flower with apparently a larger number of petals, where in reality the petals are only larger and thicker. Hence, the name double-blossom. Certain growers speak of these large blossoms as male flowers, but this theory is erroneous, inasmuch as all flowers are perfect, containing both stamens and pistils.

These parts of the flowers are attacked and become diseased, they do not function in fertilization, and consequently no fruit sets. When the disease is not so severe some of the ovaries become fertilized, thus producing partially filled fruits, which develop very irregularly, often lopsided and unsymmetrical. One very noticeable characteristic is that severely diseased flowers seldom set any fruit and remain sterile. It appears that the blossoms never open up.

Another symptom described in other sections of the country is the occurrence of a distinct witches broom, the first indications appearing when the leaf buds are opening in the

spring. As these buds develop this witches broom is produced rather than normal leaves. This witches broom consists of numerous, short, slender twigs. These twigs appear before the flower buds. Up to the present time this symptom has not been observed in Florida, but since the double-blossom symptom is becoming evident, probably closer observations will reveal the witches broom.

Cause

This disease is caused by the fungus *Fusarium rubi* Wint. The fungus may be found in the leaf buds and in the flower buds in the spring. Where conditions are favorable the fungus grows rapidly and enters certain parts of the host plant. The ovaries are penetrated and the later development of them into fruit is prevented.

The absorbing organs of the fungus known as haustoria penetrate the cells of the plant and stimulate them to abnormal growth, thus the production of larger, thickened sepals and petals.

The mycelium of the fungus may be found in abundance among the stamens and pistils, where the spores are produced in great numbers and are readily disseminated by wind and rain. These are probably the two most important factors in the distribution of the disease, altho insects and man are important factors in spreading the spores. Especially do insects spread the disease as they go from flower to flower, thus carrying the spores from infected flowers to the healthy flowers where they are in the proper environment to do the most damage in the shortest time. There is also the possibility of the spores infecting the new growth after fruiting season and producing no abnormal growth, but remaining dormant until the following season.

Control

Spraying alone has not proven to be sufficient to control this disease. Since the spores are produced in the flowers, there may be some objection to spraying at that time because of the effect of the spray on healthy blossoms and also because of the possibility of discoloring the fruit which has already set.

Handpicking may prove satisfactory, but this operation is very expensive. This method removes the

fungus from the plants, as the fungus does not penetrate the petioles and stems, but remains in the buds and floral parts.

Probably the most satisfactory control for Florida is the cutting back to the ground of the old canes as soon as the fruit is picked and spraying the new shoots immediately after the old growth is pruned out. Two or three applications of 4-4-50 Bordeaux mixture should suffice during the late summer, with one or two applications of the same spray in the spring before the flower buds show white. This spray schedule will also help to control other diseases, such as anthracnose and cercospora; especially the latter, which often becomes very severe in the late summer.

SAN JOSE SCALE

San Jose Scale

CONTROLLED BY DRY LIME-SULPHUR

For a number of years several so-called dry lime-sulphurs have been sold on the market as substitutes for the liquid lime-sulphur spray commonly used in the control of the San Jose scale on fruit trees. Many investigators have tested their value as remedies for the scale, but with varying results. Recently the United States Department of Agriculture has completed some tests covering a period of three years. They were conducted under practical orchard conditions in four different States.

These tests, the results and discussion of which have just been published in Department Bulletin 1371, have shown that commercial samples of dry calcium, sodium, and barium sulphurs, even when used at strengths much greater than ordinarily employed, do not furnish a satisfactory control of the San Jose scale.

A copy of the bulletin may be secured, as long as the supply lasts, by writing to the United States Department of Agriculture, Washington, D. C.

Why He Gave Up Tobacco

I once knew a man who smoked ten ounces of tobacco every day for twenty-seven years, and then gave it up at a minute's notice and never touched it again. He was sitting on top of a barrel of blasting powder at the time, and the head of his match dropped through the bunghole.

The New "Synthetic" Manure

By Frederick M. Lawrence

According to Mr. Henry Ford, whose name you may have heard, the entire work of a farm, plowing, harvesting, threshing, etc., can be done in about 20 days of the year. Of course this implies the use of power, the substitution of the tractor for the horse. For the balance of the year the farmer is tied to his land simply by the necessity of caring for his livestock. Abolish the animals, and the farmer will become a free man! He can make his home in the nearby town, occupy himself in profitable industry, and go out to the farm only when weather and other conditions are favorable for work there. Such is Ford's conception of farming in the future.

Mr. Ford is nothing if not radical. New ideas have no terrors for him. This latest proposal must come as a shock to those of us accustomed to farm routine as practised for generations past. Though we may not approve the idea, yet we can not quite laugh Ford out of court. He himself, he reminds us, was once a farmer boy, he has never ceased to maintain his interest in agriculture, and he has facts and figures to support him. Admitting these to be correct, we can still question his deductions. Without disputing the possibility of a farm without livestock, there must remain a doubt as to whether such an arrangement is best for the land and best for its owner.

Just how, for example, will Mr. Ford make up for this absence of animals? Though synthetic milk is conceivable, most of us will continue to prefer the product of the cow, and so, on some farms at least, that noble animal must be allowed to chew her cud in peace. Experience may prove that poultry and cattle can be raised more profitably on lands devoted to animal husbandry alone. Today many a farmer groans at the cost of feeding cattle, and tomorrow he may refuse to do it any longer. Even chickens may not be profitable enough to keep the housewife on the farm. The tendency is to do just one thing and do it well; and so both stock and poultry raising may become specialties in the future. All this we admit.

What About Soil Fertility

Imagine, however, a farm without livestock! Will it yield greater returns in proportion to the labor given it? Still more important, will the fertility of its soil be maintained?

After all, farmers do not raise

stock simply for direct profit. Often fattening cattle for the market results in apparent loss, but the farmer feels himself repaid by the manure which enriches his fields and increases his crops. Can a farm get along without manure? Can chemical fertilizers take its place completely? And even if they did, could every farmer afford to use them? Some crops, such as cotton and tobacco, repay the cost of these fertilizers almost at once; but can the yield of wheat and corn be increased enough to warrant such a heavy expenditure? It is doubtful.

And Remember the Bacteria!

Moreover, there is one overwhelming objection to reliance on chemical fertilizers alone: It rends asunder that chain of biologic events whereby organic matter, returned to the soil, is made available as plant-food. This is the work of "friendly" bacteria, and these organisms are not to be found in the nitrogen, phosphorus and potash as supplied to the farm.

Not without reason has manure been considered the fundamental fertilizer by countless generations of farmers, for it is manure which has supplied the soil with these bacteria and with the organic matter, humus, on which they work. Without them no soil, no matter how enriched, can maintain its texture and fertility permanently.

(Editor's Note: Dr. Lawrence is speaking here of soil which receives only chemical fertilizers. Readers should bear in mind that crop yields can be maintained at a high level for an indefinite period by the use of proper chemical fertilizers, lime, and crop residues—roots and stubble—as has been abundantly proved by Experiment Station tests.)

England Short of Manure

When England went into the Great War, almost her first act was to requisition every available horse for use at the front. Two years later, when the submarine warfare had cut off her food supply, and brought her population to the verge of starvation, the remaining domestic cattle were slaughtered in order to save grain for the people. At the same time every available foot of ground was hurriedly plowed up and sown with wheat in an effort to provide sufficient food. The result the next year was a great surplus of straw, and no manure.

Europe depends more on manure than we do. The boys who saw service overseas tell of the tremendous im-

portance attached to the manure pile throughout France.

Thus also to England the lack of manure seemed a veritable catastrophe. The famous agricultural experiment station of Rothamsted was called on for aid, and her scientists worked out a process which is one of the few good things that have come to us out of these evil days. It is nothing more or less than a method of making manure, real manure, without animals and it is so simple that we wonder that it had not been thought of long before.

Transplant The Soil Bacteria

Farmyard manure, as we have known for years, is nothing more than the product of certain microscopic organisms feeding on a mixture of animal matter and vegetable waste. Rothamsted found a chemical food for these bacteria which takes the place of animal matter. Of course that was not so easy as it sounds. It required months of careful study and many experiments before the right pabulum was found; but find it they did. Now it is on the market in the form of a slate-gray powder, and anybody can use it.

By mixing this substance with almost any non-woody vegetable matter, and keeping the mixture wet, the process produces a manure which chemically and in fertilizing power is almost a counterpart of the stable variety.

In Great Britain and her colonies thousands of tons of this artificial manure are used every year. We have been a little slow to adopt the method in this country, but most of our Experiment Stations are working with it, and we are apt to hear a great deal more about it in the next few months.

How to Build the Stack

In actual practise, making this artificial manure is simple and not particularly laborious. The principal farm wastes, straw and corn stover, are those most often used. For each dry ton 150 pounds of the chemical food or "reagent" are required. For each ton a ten-foot square is measured out, and on this the straw is spread in a layer a little more than a foot thick and trodden down till it is fairly level. Then it is sprayed with water from a hose until it is wet through, and over it about 25 pounds of the reagent, a gray powder, are scattered. On top of this another layer of straw is spread, trodden level, wet through,

Citrus Aphid

Now Is the Time to Swat the Citrus Aphid

and sprinkled with the powder. This procedure is repeated until six layers have been built up into a stack, flat-topped so as to hold water rather than shed it. That is about all the real work there is.

In a few days the bacteria set up intense activity in the pile. It grows quite hot, and must be sprayed with water every two or three days to control the heat. It about three weeks however, the heat dies down, and after that the pile needs only occasional sprinkling when its top and sides dry out.

It rots just like ordinary manure, shrinking to half its former size, and in about four months can be cut with a sharp spade and is ready to spread. Strange to say, a single ton of dry straw yields three tons of finished manure. This is due to the water taken up. This water is not a mere diluent, however. It is like a loaf of bread; it weighs a great deal more than the flour that went into it, the result of added water and milk; and yet you can not regard these as diluents, for they have entered into the actual structure of the loaf.

Some Special Advantages

Synthetic manure looks very much like the old-fashioned kind. It may be a little more bulky, not having been trodden down by animals' hoofs; but chemical analysis shows that it has practically the same composition. Careful field tests have demonstrated that it has the same crop-growing power as the barnyard kind. Moreover, it has certain advantages of its own. It is practically odorless. It does not attract flies. It is remarkably free from weed seeds and disease spores. It does not leach out and lose its strength on exposure to the weather. Such added virtues as these are not to be despised.

Not only straw and corn stalks, but many other vegetable-wastes can be turned into manure by this process. Dry leaves, stalks, cuttings, wild grasses and sugar-cane wastes are among the many substances that have been used successfully. Gardeners can treat their refuse as it comes along, turning it into manure instead of burning it.

Manure Almost Unlimited

Mr. Ford may not realize his dream of the farmer living in town and going out to his fields for only 20 days of the year; but the fertile farm without livestock is possible today. The farmer can make his year's supply of manure artificially at harvest time, leave it to ripen through the summer and spread it on his fields in the fall. The prospect may seem strange; and yet the director of one of our greatest agricultural institutions express-

"A stitch in time saves nine," runs the old adage, but it is the opinion of the entomologists of the Agricultural Experiment Station that an aphid killed now will mean the saving of the necessity of killing nine times nine later.

Aphids are very scarce in citrus groves right now, because the cool weather of the last six weeks has resulted in throwing the citrus trees into very thorough dormancy. However, a survey of the citrus section shows that they are present in most groves. Whenever there is enough new growth to furnish them food a few aphids will be found. But, because they are so scarce and confined to a few scattered twigs, they can now be most effectively and cheaply dealt with. The present is a most opportune time to give the pests a body blow. Growers are most strongly urged to go through their groves and thoroughly inspect at least every young tree, and destroy all aphids found. In most groves where there is very little of this young growth, the aphids are most easily destroyed by breaking off the twigs on which they are found, and dropping them into a bucket containing some good insecticide, kerosene is excellent. This will not only destroy the aphids, but will also destroy their food supply. If growers will do this now it should be possible to almost exterminate the aphids from their groves, and greatly delay the time of a heavy infestation in the spring. A very little labor in going over the groves at this time may well save many sprayings or dustings at a big expense a few weeks from now.

But to do effective work growers must act at once! A week or so of warm weather will start the growth on the citrus to such an extent that it will be much more difficult to get all the aphids. There is less new growth now than there will be any time this winter and this is the most opportune time to deal with the aphids.

Aphids do not fly around much in the early part of the season when the new growth is coming out on the

ed the same idea when he said to me that wherever dairying, yielding manure as a by-product, does not pay, it would be better for the farmer to abandon stock-raising and depend on artificial manure entirely.

trees; so those growers who rid their trees of aphids at this season need not worry much about aphids flying in from neighboring groves where nothing is done.

Nothing that the grower can do in the grove at this time will pay as big dividends on time and labor saved as the destruction of the few aphids now present. The growers should destroy every single aphid in their groves, and do it at once.

NEW COUNTY AND DISTRICT AGENTS COME TO FLORIDA

K. C. Moore, one-time county agent in Marion County, came back into agricultural extension work this week as district agent with headquarters in Gainesville. He began work on February 15.

Mr. Moore, who is 51 years old, has a wealth of agricultural and farm experience, is a graduate of Mercer University, Macon, Ga., and has taken some post graduate work at Cornell University, Ithaca, N. Y. He has been farmer, agricultural teacher, county agent, and district agent. Since resigning as county agent in Marion more than a year ago he has been in the nursery business at Pompano, Fla.

Another addition to the agricultural extension staff is Gus York, who becomes county agent in Walton County with headquarters at DeFuniak Springs. He succeeds J. W. Mathison, who resigned recently on account of ill health.

Mr. York is a graduate of the University of Georgia and has taken post graduate work at the University of Wisconsin. He has been county agent in Georgia and South Carolina for the past seven years, and comes to Florida from Hampton, South Carolina.

Georgia knows the value of freedom from cattle fever ticks. Folks over there are too glad to be rid of the pests and have spent too much money in ridding the state of them to take chances on reinfestation.

The automobile and the tractor have gone far toward liberating the horse from his labors. Now artificial manure may bring release to the other domestic animals, and incidentally relieve the farmer himself from a source of burden and expense.

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THE SOUTH FLORIDA FAIR

South Florida Fair

The South Florida Fair at Tampa, which has just come to a close was far and away the greatest exposition of Florida's resources that has ever been held. In point of excellence and variety of horticultural and agricultural products it ranks with the very greatest Fairs of the country.

Naturally, the major portion of the exhibits and the greatest degree of interest centered around the displays of citrus and other subtropical fruits. In the citrus line it is doubtful if a greater variety or more tastefully arranged display was ever brought together under one roof. Certain it is that from the standpoint of excellence this citrus display has never been approached. Rivalry between the numerous citrus producing counties of the state, while good humored, was most intense. In view of this extreme rivalry the Fair management was fortunate indeed in securing the services of a noted California horticulturist to act in the capacity of judge, thus eliminating any possibility of favoritism or local prejudice in making the awards.

That St. Lucie County again for the eighth consecutive year won the grand sweepstakes in the citrus class was due to the unquestioned excellence of the fruit displayed and the diligence of its sponsors in submitting nothing but the very best. Likewise the award of second prize to Manatee County was due alone to merit of the fruit display. Third prize went to the newly created Indian River County, which formerly was a part of St. Lucie County, while Imperial Polk of the Ridge section ranks fourth.

Other citrus displays were of a high order and no county competing for a prize need be ashamed of the showing made.

To the visitors from other states and those who for the first time witnessed a competitive display of Florida's citrus fruit, the South Florida Fair proved a revelation against which no amount of jealous propaganda can prevail.

In other horticultural lines as well as in the

agricultural and livestock displays, the South Florida Fair was a demonstration of Florida's varied industries and proof that Florida's real greatness and permanent prosperity lie in the richness of its soil and the beneficent influence of its climate.

The South Florida Fair has again demonstrated its un-measured value to the state at large and the promoters of this great exposition are due, not only the congratulations, but the thanks of every true Floridian.

A WISE PUBLICITY MANAGER

Amid the mass of anti-Florida propaganda which is being circulated outside the state, it is refreshing to run across an occasional publicity expert who has the wisdom to see the fallacy of such a policy, the discrimination to separate the wheat from the chaff and the courage to tell the truth. Such a man is Paul J. Kruesi, chairman of the Chattanooga Community Advertising Association. In a letter recently sent to all members and contributors of the association he says:

"Don't knock Florida!

"Whatever you may think about the land boom in Florida, don't knock Florida. No two states have such a community of interest as Florida and Tennessee. Florida has a climatic and agricultural advantage which nothing can ever change or take away.

"Florida will continue to grow faster in wealth than the present generation has yet seen. She will attract people with money, a very large number of whom (all of them west of Buffalo) must logically pass through Chattanooga as the gateway via either rail or motor. We have much to gain from this travel in both directions.

"Florida has much to gain by similar co-operation, for no matter how livable her summer climate, people want and need a change—just as we go in such large numbers to Florida in winter, so would it be logical for them to secure their "change" by coming to our mountains of Chattanooga or East Tennessee for the summer.

"It isn't a case of competition. Our own salubrious climate, which permits building operations and golf playing every week in the year, still does not keep us from hungering for a whiff of the salt air of the sea shore, or the balmy sunshine of Florida's matchless climate. Hence Tennesseans go there in immense numbers and have large property interests there, running in Chattanooga's case alone into millions.

"Some day the shoe can be put on the other foot—Florida will realize we have the nearest and most logical mountain resorts to which to come themselves, and to steer those homeward bound for Ohio, Michigan and other middle western points.

"The advantages of both states are so different and yet so genuine, that every dictate of fair play and self interest indicates the desirability of Florida-Tennessee co-operation."

PRAISE FROM CALIFORNIA

Robert W. Hodgson, Division of Sub-Tropical Horticulture, University of California, who officiated as judge in the citrus department at the recent South Florida Fair, high in praise of the excellence of the fruit exhibited and of the attractive manner in which it was displayed. Asked for his personal opinion of the citrus exhibits, Mr. Hodgson replied that it was simply wonderful and that he was glad of the opportunity afforded him of seeing this magnificent display of Florida's citrus products and of studying at first hand the problems and methods of Florida growers.

"Florida and California should stop trying to make comparisons of their citrus fruits. Rather the growers of each state should pay greater attention to the contrast," said Mr. Hodgson, "Comparisons are sometimes odious, but by contrasts the growers of each state may learn much of benefit which can be applied to their own problems and methods. There is neither need nor room for jealousy between the two states and if we can learn to co-operate with each other instead of knocking each other good may be accomplished. A closer study of the conditions in each state by the growers of the other, and a better understanding and closer association would do much to better conditions for the growers of each state."

Since the close of the Fair Mr. Hodgson has been visiting various citrus sections of the state with a view to studying problems and methods here for the benefit of the growers in California. He is fully convinced that there should be a greater degree of harmony and a fuller interchange of ideas between the growers of the two states. This gospel he says he shall preach to California growers on his return to that state."

PIONEER NURSERYMAN DEAD

Citrus growers, horticulturists and pioneers join in mourning the death of Mr. Egbert N. Reasoner at Oneco, Florida, on Friday, February 5th. In company with his brother, Mr. Reasoner founded the Royal Palm Nurseries at Oneco some forty years ago and until shortly before his death he had been the executive head of the company.

As head of this pioneer nursery and as leader in all horticultural affairs, Mr. Reasoner had an acquaintance throughout the state and nation and was inter-nationally known in horticultural circles. Only a year or two ago Mr. Reasoner made a pilgrimage to South Africa for the purpose of studying horticultural topics there. He also made stops at a number of South Sea Islands to carry on investigations. The results of the knowledge gained on this tour were being put to use in his nurseries at Oneco.

Always a believer in Florida and a lover of plants and flowers, Mr. Reasoner had long been a prominent figure in the up-building of horticultural industries and the beautification of his state. In his death Florida horticulture loses a leader whose place it will be hard indeed to fill.

With thousands of other friends The Citrus

Industry sincerely mourns the loss of this great horticulturist and most estimable man.

FLORIDA SOIL POSSIBILITIES

Soil

Right in line with the suggestions so often made in the columns of The Citrus Industry, that Florida's real and permanent prosperity rests upon the products of the soil, is a recent editorial in the Eustis Lake Region. Among other things, the Lake Region says:

"It is predicted that the year 1926 will mark the commencement of the greatest era of farm development in Florida that the state has ever witnessed. If this proves true, and the indications are that it will, it will be well for both the state and the farmer. Florida needs the farmer and the farmer needs Florida."

"Disregarding all of the lighter advantages which the state has to offer, such as pleasing climate, beauty, sports and pastimes, and confining consideration to the cold blooded business proposition, there is no part of the known world that can offer more to the agriculturist in dollars and cents than can be found here."

"It is entirely possible and practicable to produce all of the poultry, eggs, milk, butter and other products of the poultry yards and dairy farm within the borders of the state that are consumed here. It is also practicable to raise all of a great many varieties of garden truck in this state that is needed here. Likewise, many of the more staple crops, such as potatoes, corn, etc., may be raised here under proper care and conditions."

"There are still other advantages now that perhaps did not exist a few years ago. Every farmer, or nearly every farmer, has a market at his door for the greater proportion of his diversified crops. Since the advent of the tourist in all parts of the state, each town or city furnishes a potential market for the farm. There is no freight charges to pay, the goods are delivered to the retailer or direct to the consumer, thus also avoiding the middleman's rake-off. There need be no glut in the market as each farmer could secure his own clientele of customers and he could undersell the market, if he wished, and yet get more for his work than those less favored."

"Then, with all of these advantages, why not get the northern farmer, as well as the northern tourist, to come here? Why not cut up vast acreages into smaller farms of ten, twenty or thirty acres each, sell these farms to the practical farmer on terms that he can meet and start the farms on a boom that will equal or excell the development scramble for homesites? Producing farms would not only mean prosperity to the farmer and the man who sold him his lands, but it would be a boon to the merchant, it would add to the business of the banks and would benefit all business interests of the state, while it would go a long way toward causing houses to be built on many of the homesites where it is now doubtful if homes will be seen for many years, at least. Why not give the development of farms a trial? There's money in it."

Some Glimpses of the South Florida Fair

By J. Francis Cooper

A trip to the South Florida Fair at Tampa during the first two weeks of February must have convinced anyone that this fair certainly shows Florida products. Convinced of this, one could hardly fail to be impressed with the great variety of these products—many of them grown in any one county. For instance, a list of the kinds of truck crops shown by Manatee County reads almost like

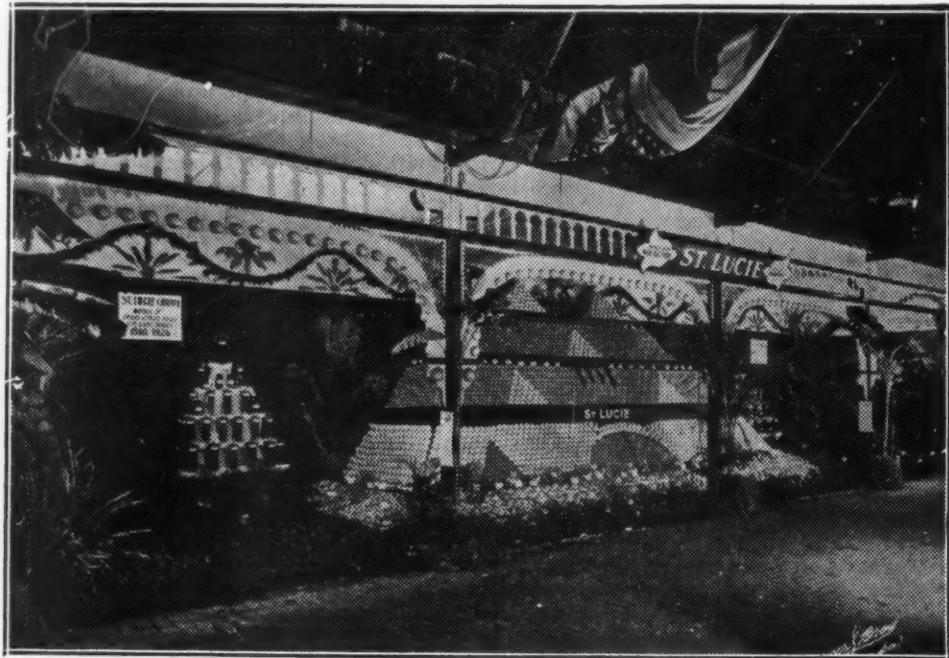
justly proud for having won the blue ribbon on citrus for her eighth consecutive year and Manatee and Indian River should feel hardly less proud for having won second and third, for both had good exhibits.

Palm Beach County showed blue ribbon cane and cocoanuts, in addition to a splendid collection of truck and citrus crops, many of which were awarded ribbons.

sota, Hendry, Lee, Polk, and Hillsborough also had a nice display of strawberries, showing the growing plant and the harvested fruit. Broward had some excellent honey.

The Hardee and Pasco exhibits showed a range through a wide variety of products from truck and citrus to staple crops, attesting to the productivity of the Peace River Valley in Hardee and the fertile hills

QUALITY TELLS



The St. Lucie county exhibit of citrus fruit at the South Florida Fair, Feb. 2-13, 1926, and which won the grand prize for the 8th consecutive year, probably the most beautiful display of citrus fruit ever shown in the world.

a tropical seed catalog. The Manatee exhibit contained celery, Irish potatoes, sweet potatoes, eggplant, lettuce, cauliflower, tomato, radish, Swiss chard, squash, parsley, cabbage, kale, English peas, carrots, sackrola, and watermelon—to mention only the truck crops.

Competition for the blue ribbon on citrus was probably the keenest this year that it has been, and there were a number of exhibits that did credit to the counties from which they came. St. Lucie County was

Seminole and Volusia had one of their most recent major enterprises—the bulb industry—well represented. And of course Seminole's celery industry was not overlooked.

Broward County's exhibit of truck, hedge and ornamental plants was interesting, especially since there is an increased interest in beautification work in the state.

Truck and citrus exhibits were the main feature of a number of the counties of southern Florida, among them being Broward, Pinellas, Sar-

and flat lands of Pasco. Pasco's showing of a model farm was also of interest.

The Glades County exhibit was composed largely of citrus, and the Highlands exhibit of citrus and bananas.

Staple crops, grasses, hay, grain, some truck, meats and honey featured the counties of the central and western part of the state, such as Alachua, Madison, and Taylor. These three counties also had good

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Relative Value of Fumigation and Spraying Discussed

In view of the great interest and frequent discussions of the relative merits of spraying and fumigation in the control of citrus pests among the citrus growers of Florida, The Citrus Industry submits two views which will doubtless prove of interest to growers. Professor J. R. Watson of the Agricultural Experiment Station at Gainesville gives his views on fumigation based upon recent extensive tests. Mr. B. M. Hampton of Rancho Glen Haven, New Port Richey, Florida, gives his views on spraying based upon practical demonstration in his groves. The two views are presented that growers in general may have the benefit of the experience of others.

FUMIGATION OF CITRUS TREES

By J. R. Watson

Fumigation of citrus trees with hydrocyanic acid gas as a means of controlling scale insects and whiteflies has been tried many times in Florida, but has never been extensively used by growers. Different methods of generating the gas have been used. The latest is by the use of calcium cyanide, a black dust which, by absorbing moisture from the air or soil, generates the gas. This method seems to eliminate some of the objectionable features of the older methods.

In cooperation with an American cyanamid company, which supplied all the material and labor as well as experts to supervise the work, some experiments have been carried on with this material during the past year.

Can Be Carried on Almost Any Time of The Year

One of the objections to the fumigation methods previously used was that under Florida conditions they could be employed for only a few weeks during the winter. Calcium cyanide has been used as late in the season as the first of June and as early as September with no more injury (leaf fall) than would have occurred with the use of the ordinary oil emulsion sprays at that season. In some cases the temperature has been as high as 95° F. and the humidity over 70 per cent. In some cases as

much as 10 percent of the leaves have fallen, but even in such extreme cases the loss was confined to old leaves which had about run their life term or to those heavily affected by "black melanose." Young and tender growth was often scorched.

Efficiency

The kill, both in the case of scale insects and of rust mites, was more thorough than would ordinarily be obtained by spraying. In some recent experiments, the results of which were carefully checked by the Department of Entomology, the average kill in the case of the Florida red scale was about 96 percent and in the case of the purple scale 98 percent. In the case of the purple scale the only ones which escaped the fumigation were those which were under other scales, sometimes under two or three scales. In such cases the gas does not always penetrate to the bottom of the mass in sufficient amount to kill the scales. The above figures include not only the adult insects, but the eggs as well; practically all the eggs were killed.

In the case of rust mites careful inspection of one grove a month after fumigation disclosed rust mites on only a single tree and that was immediately adjoining a row of trees which had not been fumigated. Unfumigated trees, on the other hand, were heavily infested with rust mites. Two months after fumigation the rust mites had commenced to reappear on the fumigated trees, but had not even yet increased to dangerous numbers.

Method

The trees to be fumigated are first covered with a tent in the well-known method employed in California. The measure amount of cyanide is then introduced under the tent by means of a hand duster, so constructed that the dosage can be accurately measured. The dust is directed on the ground, altho naturally a fine cloud of dust spreads throughout the tent and covers the leaves. Most of the cyanide, however, remains on the ground. Where the dust was thrown into the trees there was apt to be too heavy an accumulation in certain spots.

The amount used, of course, varies with the size of the tree. The dose found most effective and safest was in general about $\frac{1}{4}$ of the dosage indicated in the California fumigation

tables. It was found advisable to leave the tents over the trees for 45 minutes. If much wind is blowing it is advisable to throw a few shovelfuls of dirt on the flap of the tent where it lies on the ground.

Precautions

The trees must be perfectly dry, that is all the dew or rain must have evaporated from the leaves, before the cyanide is applied. The dosage used must be accurately measured, not guessed at. This method must be used only in the hands of careful, experienced men.

Altho the cost is greater than spraying, the increased efficiency may in many cases make fumigation desirable.

SHALL WE SPRAY OR FUMIGATE?

By B. M. Hampton, New Port Richey, Florida

Sometime ago I noted articles going the rounds, not merely in The Citrus Industry but in other publications as well, urging fumigation in the place of spraying. Somehow that struck me as just one more burden added to the growers back, just one more tax on the citrus industry, and as it looks to me this is uncalled for.

I have kept pretty close tab on fumigation and spraying, both in Florida and in California. I have seen groves in California almost ruined by careless fumigation. It is also true that I have seen some groves badly injured by spraying, but even so, the fumigation calls for heavy tents of some kind. These are costly and hard to handle and often dangerous to a greater or lesser extent when filled with poison gasses as they must be to destroy the pests on the trees.

There are so many formulas for spraying that it is hard to tell which ones to use and which ones not to use. Still, if one is careful he can sift the chaff from the wheat. I have kept tab on spraying and fumigation in California for some time and I find that spraying is gaining in the Sunset state on fumigation as it is much cheaper to spray and much less trouble and safer to handle.

Now, please understand that I have
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Plant Immigrants Make Good In Florida's Warm Climate

By Dr. Beverly T. Galloway

A representative of The Christian Science Monitor called upon me the other day and said he was going to Florida. "Nothing strange about that," I replied. "Everybody seems to be going there these days."

And then he asked me about fruits and other crops of Florida and I told him of the "plant immigrants" we had sent and were still sending into the land of Ponce de Leon in the hope that they might find a home there. Plant immigrants sounded new and a little thrilling, so he asked me to enlarge on the subject; hence this story.

I hesitate to say what would happen to Florida if all the plant immigrants that have gone into the state and made good should be taken away. There would be no oranges or grapefruit, mangoes or avocados, pineapples or bananas, and a long list of other fruits, vegetables, farm crops, and what not. Florida would revert to its original wilderness and would have little but climate on which to fall back.

World Search for New Crops

As a background for our story of plant immigrants that have made good in Florida, we should like to put down a few words about the way our government has searched the earth for new plants and used them in helping to build up great crop industries here. This work has been going on for a long time, but it has only been within the last 25 years that it has been organized and systematized. There have been romance, tragedy, and some comedy associated with it. Even before the government took a hand there were intrepid pioneers with wide vision who saw the possibilities of plant introduction.

Dr. Henry E. Perrine was one of these early workers and the first, we believe, to introduce tropical plants into Florida. Dr. Perrine was a plant lover and had faith in his country and especially Florida. He was sent to Yucatan as American Consul more than 100 years ago and his letters to this government show that his whole thought was for making a tropical garden out of Florida. He finally received a big grant of land near where our present Plant Introduction Garden is located at Chapman Field, a few miles south of Miami, and he immediately be-

gan introducing new crops. He was just getting started in this work when he was slain by Indians Aug. 1, 1840. For many years thereafter Florida was considered practically hopeless as a crop-producing actuality.

With what wonder would the good doctor view today the incomparable gardens around Miami, the like of which, for variety and beauty, are found nowhere else in the world.

Mr. Collin's Efforts

Coming to a more recent period, I recall a few years ago standing in the shadow of one of the magnificent palaces at Miami Beach, called an hotel, and talking with a plantsman and pioneer who had vision. I remarked on the beauty of the scene, the blue sea, the wonderful tropical vegetation, buildings that reminded one of Arabian Nights stories, and over all an atmosphere of quiet and peace. The pioneer, with whom I talked, landed on this practically unknown coast less than three decades ago, and what do you suppose he did? Planted coconuts—thousands of them.

The nuts often had to be floated ashore, as there was no other way to land them. This intrepid man, with a partner, traveled up and down the coast for 40 miles planting coconuts. Later he began planting large groves of other tropical fruits, such as avocados, mangoes, and many tropical palms, and then came the great rush and Miami Beach blossomed into a tropical wonderland, surpassing anything the Old World can show. The pioneer, J. S. Collins, has lived to see all this come to pass.

But to come back to what the government through the Department of Agriculture, has done in systematically organizing plant introduction work, it may be said that the first steps in this enterprise were taken some time over 25 years ago when James Wilson of Iowa was Secretary of Agriculture. James Wilson, a man of broad vision, saw the possibilities of this wonderfield and put one of his young men, David Fairchild, at work on the job. Agricultural explorers were appointed and sent into the byways of China, India, Japan, Africa, South and Central America, and the islands of the seas, in search of new crops. David Fairchild was one of these explorers; in fact, he spent

good many years at it, came back, and devoted the best part of his life to making it a success. Even now, he is again in the field bound for some of the little-known countries of the South Seas where he expects to find many things for his adopted state—Florida.

In addition to the agricultural explorers the government sends out, there has been built up a corps of correspondents and collaborators in all parts of the world. This corps of valuable aids is made up of American consuls, missionaries, army officers of many nations, travelers, soldiers of fortune, and all and sundry who may be made useful. They are all working for Uncle Sam and the story of a few things some of these good people have accomplished would make a volume. Of course, the benefits are not all one way, for in exchange for what the countries they are in give us we try to give value received in the shape of seeds or plants of our own development.

Thus has been built up an office of foreign seed and plant introduction, an office that has introduced nearly 70,000 numbered new and promising plant immigrants in the last 25 years. And, in doing this work, we believe we have gone ahead of our colleagues who have looked after the human immigrants that have come to our shores, for we have a record of every one of the 70,000 different lots that have come in, know how they have behaved, and whether they have made good. The record, known as plant inventories, containing descriptions alone of our plant immigrants, consists of 74 volumes, each aggregating 50 to 75 pages. Every one of these plant immigrants, upon arrival, is submitted to rigid inspection and fumigation. We take no chance of introducing new crop pests along with the crop itself.

When our plant immigrants gets into the country, we are not through with it by any means. We have gardens, sort of plant Ellis Islands, where our new friends are placed on probation as it were, so that we can keep an eye on them for a time. For more than 20 years we have maintained one of these plant introduction gardens in southern Florida, most of the time in or near Miami, and more recently at Chapman Field. The story

THE CITRUS INDUSTRY

of this little garden alone would make an interesting one. Here, even now, can be found some of the old trees of avocados and mangoes, Carissas, Surinam cherries, and other plants that constitute the parents of thousands that have been distributed in many parts of the state. We must pass by the story of the garden, however, and what it has done and speak more particularly of crops that have been introduced and what has happened to them.

Plant Immigrants in Florida

We shall pass over some of the big money-making crops, like the orange, grapefruit, and pineapple. They are all established and are bringing to the state a good many millions of dollars annually. The federal and state governments have done much to foster these big industries, but they are now on their feet and can take care of themselves. We want to speak particularly of some of the more important or what may be called our struggling plant immigrants. That is, the plant immigrants that still have to make a place for themselves in the sun or the land, whichever may sound best. And may we pause for just a moment to say that it often takes a long time and many ups and downs for a plant immigrant to make good. Witness the tomato, long regarded as a mere curiosity, a "love apple", not suited for food, and even sometimes poisonous. The potato, too, had a long struggle before it was accepted as a food in good standing.

The mango is a good fruit to start with because it is a very old one, whose praises have been sung by men of many kinds and many climes for hundreds of years. The people of India were growing and singing the praises of the mango before the Christian Era. It was Dr. Perrine, to whom we have already referred, who probably brought the first mangoes to Florida. They were lost, and then about the beginning of the Civil War another shipment came in. Along in the early 90's the Department of Agriculture took a hand and introduced some choice fruits.

Now, before going any farther, let us see what mango is and how it grows. It grows on a tree and the tree is beautiful evergreen with long, narrow, glossy leaves. The tree in Florida is 15 to 25 feet high, has a rounded symmetrical form, and even as a shade tree is well worth while. The fruits vary according to variety, the best ones, like the Mulgoba, Haden, and Amini, often weighing 9 to 10 ounces to more than 20 ounces each. The best mangoes have a flavor and piquancy all their own. They have sweet yellow flesh

and a thick, tough, greenish and sometimes beautifully colored skin. There is one large seed in the center of the fruit. The fruits are borne on long pendulous stems and a tree loaded with them is a beautiful sight. The Department of Agriculture has introduced a large and varied assortment of mango varieties from all parts of the world where the tree thrives. From the little garden on Brickell avenue, Miami, it has sent out many hundreds of plants.

Easy Plant to Handle

Nurserymen and private individuals have not been idle and have done much to popularize the fruit and bring its good qualities to public notice. Since our people have assumed responsibilities in the tropics, travel more, and see more of the out-of-the-way places of the world a greater demand for such things as the mango has developed. Mangoes from Florida are now shipped to many of our northern markets where they sell as high as 50 cents apiece. It is an easy fruit to handle, to ship, and to market, but a rather messy one to eat. Some one has said that the way to enjoy a mango is to eat it in a bathtub. Florida has a monopoly on the production, for the southern part of the state is the only region in the United States proper where it has been grown in marketable quantities.

The mango, no doubt, has a future and is another one of our immigrants of which we may well be proud.

It is fitting, in closing this little story on mango, that we should say a word about one of the children of the mango immigrants. The Haden mango is believed to be a child of the Mulgoba. The Mulgoba came from India. More than 40 years ago there was a professor of military science at the University of Missouri, where I attended school. Captain Haden had been assigned to this duty by the department at Washington. Captain Haden later moved to Florida and took up his residence in the wilderness where Coconut Grove is now located. Both Captain and Mrs. Haden were ardent plant lovers and soon had a pioneer plant garden growing.

The Haden mango originated from a seed of the Mulgoba planted by the captain. It was a good seed, for mangoes, like apples, peaches, pears, and plums, do not come true except where propagated by buds, cuttings, scions, or other vegetative parts. One might plant 10,000 mango seeds and then get nothing but bearers of worthless fruit. Captain Haden planted one seed and the Haden is the result. Perhaps not everybody will agree but this native child of Florida appealed

Seventeen

to me as about the best all around mango in the state.

Story of the Avocado

From the mango let us turn to another important crop which can hardly be classed as a fruit, although frequently spoken of in this way. I refer to the avocado, sometimes, and much to the disgust of the real Floridians referred to as "alligator pear." The avocado is about the nearest thing to good bread and butter growing on a tree that we know anything about. A couple of corn muffins, a good avocado, and a cup of chocolate, is a fine meal any time, any place.

The avocado is a child of this continent and, strange to say, does not seem to be much appreciated outside of its native home. It is in Central America where the avocado attains its greatest prominence as a food plant. It constitutes an important and almost vital article of food in all the countries from Mexico southward. In many places it takes the place of meat, for which it is a very good substitute. Dr. Perrine is also credited with the first introduction of the avocado into Florida. It is very likely, however, that the early Spanish travelers brought it in from adjacent islands where it had long been grown.

The department of agriculture at Washington has conducted a number of explorations in search of new and promising types of avocados. In 1916 and part of 1917 Wilson Popenoe, an agricultural explorer for the department, spent 18 months in Guatemala searching for and sending home one of the largest collections of avocados ever brought together. Mr. Popenoe traveled the mountains and valleys of Guatemala on foot and on mule back locating desirable types and sending back bud wood for propagation. The avocado, like the mango, does not come true from seed, hence twigs or branches containing living buds had to be sent many hundreds of miles to Washington, where, in special greenhouses, thousands of avocado seedlings were growing ready to receive the buds.

After making sure that every bud was absolutely free from insects, etc., a single bud was made to grow on each seedling. The bud thus transplanted has all the characteristics of the tree from which it was taken. The seedling root and stem merely serve as the nourishing mother. Between five and six thousand of these baby avocado immigrants, representing nearly 30 different kinds of avocados, were distributed and a number of them have already made good in Florida.

Continued on page 24

(Alle) J. Lee

Tennesseean Sees True Worth of Florida

J. Lee Allen, Chattanooga realtor, who has made a recent study of conditions in Florida, has written what he declares to be the truth about that state, and which will prove interesting to many readers. He says that the real Florida has been obscured by exaggerated reports of feverish gambling in real estate and that the structure is sound to the core. A significant statement in Mr. Allen's article is that Floridians have more faith in the future of Tennessee than Tennesseans themselves, with especial reference to the proposed power developments in this section.

Mr. Allen's article follows:

"All aboard!" sang the conductor: "all aboard!" echoed the trainmen. Porters grabbed their stools, and from the ice and snow blizzard blasts of a dozen different cities sped as many units of the Cosmic express.

Old and young, plutocrat and peasant, builder and buccaneer, gentle and Jew, all were present and southward bound. Here and there along the way units of the express came together like the sections of a pointed snake and another caravan was complete.

"Where are you going?" asked the second man to enter the smoking compartment.

"Where am I going, where do you think, man, a fellow would be going such weather as this? Florida, of course." "East coast or west?" questioned the first speaker. "Hill country," answered the other. "What do you think of Florida now?" inquired a third party, and the discussion was on.

And to answer this last question, nation-wide in its utterance, these lines are written. (All closed minds and incurable knockers should sit back here).

Real Florida is a master-planned, without a suspicion of top-heaviness firmly constructed, modern building, and with a concrete foundation sunk to the very bedrock of economic worth.

Its basement is filled by her mineral and marine assets, phosphate, cement and building rock, kaolin, Fuller's earth and sand; its inexhaustible underground water reservoirs, its oysters, clams, shrimp, lobsters, fish and

sponges; as an illustration, 80 per cent. of the phosphate used by the entire United States is mined in Florida. Tarpon Springs is the world's greatest sponge market outside the Mediterranean. The fish catch of the state, alone, brings an annual return of \$15,000,000.

The first floor of the building displays the educational, horticultural, agricultural, trucking and manufacturing interests; in fact, all activities of a material character, including roads and railways, banking, air-service, ports and shipping. For example, Florida is developing a great educational program which includes what promises to be one of the best universities in the country, \$80,000,000; its horticultural output of citrus fruits and nuts brought a net return of \$24,000,000; its \$10,000,000 naval stores output is 60 per cent of the entire naval stores production of the United States; other timber products exceeded in value \$45,000,000, and ship-building totaled \$20,000,000; bank deposits are now more than \$750,000,000! hundreds of miles of railways and roads and hundreds of millions of building, public and private, are under construction.

* * *

Florida's second story is the recreation and diversion which the state furnishes in such generous measure—not merely to the old, who find there renewed health and strength, and greater longevity, but to many of the young and middle-aged who turn to its beautiful beaches, its yachting, hunting, golfing and fishing for surcease from the nerve-racking speed and monotonous machine-like activity of many modern businesses. Yet, despite the numerous old people who flock to Florida for the winter, it remains, according to state, insurance and federal statistics the healthiest state in the Union.

The third floor of the building is Florida's climate, the exceptional desirability of which is everywhere conceded and nowhere denied. It makes certain that the state will become the American Rivera, the winter playground of the United States. So long as men and women grow old; so long as northern wheels of industry create dividends the old will recuperate and the young recreate in Florida.

Thus far, the structure is sound to the core. This is real Florida, about

which untold volumes of praise will be written when the effervescent, all-knowing knocker has been forever smothered by growth and progress, which he had not eyes to see.

* * *

To most minds, real Florida has been obscured by the "feverish" gambling which has been constantly chronicled and greatly magnified by the newspapers, bankers, and others yet fail to realize that the world's economic activities are fast becoming a unit, no particular part of which can exceptionally thrive longer than it offers exceptional service. These gentlemen should also recall that the knocker community, like the knocker individual, has but itself to thank if it finds its venomous shafts returning to it as boomerangs. This "feverish" activity is the roof garden upon the real Florida building, with the relatively flimsy character usually found in such places.

Some thoughtless folks seem to think that the whole gambling world must have adjourned to Florida. That the ticket-machine readers, the high-stake private room club gamblers, the bucket shop frequenters, the oil men and the mine speculators, all suddenly found in Florida the acme of their dreams as a table on which to exhibit their skill at the game of chance; that many have even come from foreign countries to ply their trade.

An author, recently returned home from a visit to Miami, remarked to his friend: "You should immediately go to Florida. You are in the selling game and anything may be sold in Florida." "But," said his friend, "how do you know this? Did you sell anything yourself?" "Yes," said the writer, "I sold my dog." "Sold your dog!" exclaimed his friend. "What did you get for him?" "\$50,000," said the writer. "\$50,000!" said the friend. "\$50,000 for a dog?" "Certainly," said the writer. "How did you do it? Did you get the cash?" "Well, no, I didn't exactly get the cash, but I got the equivalent." "Well, that beats all the Florida stories I have heard to-date. Say, just how did you settle for that dog anyway?" "Well," said the writer, "I got the equivalent of cash all right and saved income tax besides. You see, I

took two \$25,000 cats."

* * *

It is a pity that newspaper writers do not clearly see, that many bankers lack the vision to recognize and in fact that all persons should be unable to realize that this "feverish" activity is but a mist, an unavoidable by-product of prosperous conditions in legitimate business of whatever character and wherever found, a mist which will eventually be dispersed as quickly and as effectively as it gathered, and without producing any hurt or loss to real Florida beyond the purely psychological.

While these speculators are indeed, in some instances, but the purest gamblers, it must not be overlooked that Florida's the house, and that in this case, as always, the house gets its takeout, and to that extent profits immediately through their operations. Though, doubtless, at the time of their passing, the state will experience a real benefit, rather than suffer a loss, yet these people in their way and time have served a useful purpose. Farm lands rarely yield their capacities until the land has been advertised to the four winds and values have risen to the point that the farms will not produce beyond a reasonable return upon the money invested. Cities rarely build to any great extent until building lots have risen in price, through speculation, to a height which requires the owner to build in order to realize immediate profit. As long as it is possible to speculate in either land or lots, men buy to resell, and only when they are no longer able to sell for any considerable immediate profit do they turn to the improvement of property. In this way the speculator has been useful to Florida. Through this "feverish activity" he has advertised to the world at large the state and its possibilities.

A southern manufacturer recently returned to his home city after a trip to New York, upon which he held lengthy conversation with the vice-president of a world-known banking institution of high standing. At his club, after his return, he told one day with some assurance that he had a new slant on Florida—that this vice-president of this great bank had stated that there was nothing remarkable in the spectacular development going on in Florida—that just as the holding of a dam until an irresistible quantity of water bears down upon it and causes a flood, so Florida, having been the most backward of all our states to development, finally came through with delayed progress, spectacular in proportion to its hitherto inactivity. It is such erroneous propaganda as this, swallowed whole

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by many good people, which has deterred them from making many a good investment.

Now, the truth is that this vice-president knew little of his subject, or else was guilty of deliberate falsehood. One-half moment to reach for his encyclopedia, a full moment to remove accumulated dust from the selected volume, and he would have had before him ample proof that Florida has long been one of the most progressive states in the Union, its population from 1850 to 1860 having increased 62 per cent; from 1860 to 1870, 34 per cent; from 1870 to 1880, 44 per cent; from 1880 to 1890 46 per cent; from 1890 to 1900, 35 per cent; from 1900 to 1910, 42 per cent; from 1910 to 1920, 29 per cent; and according to best available figures is now increasing at the rate of about 30 per cent, for the period from 1920 to 1930. Other writers claim a larger increase at the present time, and they may be correct. At any rate, it is difficult to find elsewhere so steady, consistent increase in population as has been recorded in Florida during the last three quarters of century. The same sort of spectacular growth has attached to Florida's banking business. In 1890 it had but \$2,000,000 on deposit in all the banks of the state. Today it has more than \$750,000,000, or three and a half times the total bank deposits in 1880 of sixteen southern states. Tampa banks in 1890 had but \$300,000 in deposits; today they have \$95,000,000 and total resources of \$105,000,000. Similar growth has occurred in most all other fields of endeavor.

* * *

Recently a number of gentlemen were assembled at dinner in a Tennessee club. These gentlemen insisted that Florida was but a bubble; or, if not a bubble, at least there would never be a permanency to its growth and development until it had a manufacturing industry, a pay-roll. It is remarkable how unanimous among them in the opinion seemed to be that Florida at present has no manufacturing interests, no pay-rolls of consequence, the seeming consensus of opinion, freely expressed, being that if Florida has such a manufacturing business it would, perhaps, be the greatest state in the Union. The reader may easily imagine how surprised and disconcerted these gentlemen were when informed of the facts.

In reality the state of Tennessee has a population of a little more than 2,500,000. Florida's population is about 50 per cent of that amount. Tennessee, according to last census figures had a manufactured output of \$556,000,000. Fifty per cent of this

Nineteen

amount is some \$22,000,000 less than the manufactured products turned out last year by the state of Florida. One industry of Tampa has a pay-roll equal to the entire pay-roll of the really great city in which the above mentioned gentlemen reside. It is hardly conceivable that business men should be so unaware of the facts and form and express opinions so widely at variance with the truth.

Actually of the total gross products of Florida, 68 per cent are manufactured, 26 per cent are agricultural, 4 per cent are mineral, and 2 per cent animal. In point of net return, manufactured products shrink to 55 per cent, agricultural products increase to 37 per cent, mineral products advance to 6 per cent, and animal products to 3 per cent. It would seem, therefore, that while manufacturing interests may be necessary to a perfectly balanced community they are not from even a purely material standpoint so important as either animal, mineral or agricultural activities.

* * *

Notwithstanding Florida's most unusual progress in agriculture, it is frequently stated that there is nothing to Florida but sunshine and sand. Sunshine and sand will themselves do much in such a kindly climate when properly utilized, but they can hardly account for the fact that the ten leading vegetable crops in Florida have averaged, during the past five years, a gross return per acre of \$430 at a gross cost per acre of \$133, or a net profit per acre of \$287. One county, Sumter, in the central portion of the state, produced and shipped, during the years of 1923 and 1924, 4,886 carloads of beans, cucumbers, cabbage, tomatoes, citrus fruits, melons and mixed crops—over 100 carloads to the square mile cultivated. Yet this county has as yet reduced to cultivation less than one-eighth of its territory.

In this connection it is significant that there is a decided agricultural tendency in Florida toward more intensive cultivation. This is a good thing. As an instance, in 1910 there were 1,093 farms in Orange county aggregating 242,000 acres, valued at \$12,000,000, while today there are 1,510 farms in Orange county aggregating but 63,000 acres and valued at \$24,000,000. Yet, the volume of products and profits is much greater today than in 1910.

It is true that because of a lack of thorough co-operation, a poor system of distribution, inadequate transportation facilities and discriminating freight rates, Florida's citrus industry

Continued on page 26

FARM VALUES INCREASED

MORE THAN \$17,000,000

DURING PAST YEAR



A View of the Allapatchee River,
Near Punta Gorda

**STILL TIME TO MAKE
CLEAN-UP SPRAY FOR
WHITEFLIES ON CITRUS**

Gainesville, Fla.—There is still time to spray on account of the whiteflies that infest citrus trees. While October and November are regarded as the ideal times during which to spray as a final cleanup for the season, nevertheless, effective spraying can be done right now, the trees brightened up and put into better shape preparatory to the blooming period which will soon be here, says Dr. E. W. Berger, entomologist of the State Plant Board.

If the leaves are black with sooty-mold, which is evidence of the presence of an abundance of live whitefly larvae on their under surfaces, it is apparent that the trees should be sprayed. Oil sprays such as are recommended for the control of scales and whiteflies infesting citrus should be employed. Spraying now will also lessen the number of scale-insects as well as destroy colonies of the so-called "new citrus aphis" that may be present. The spray must be directed against the under surface of the leaves.

For additional information address Florida Experiment Station or State Plant Board, Gainesville, Florida.

TOO SMART!

He (in restaurant): "How's the chicken today?"

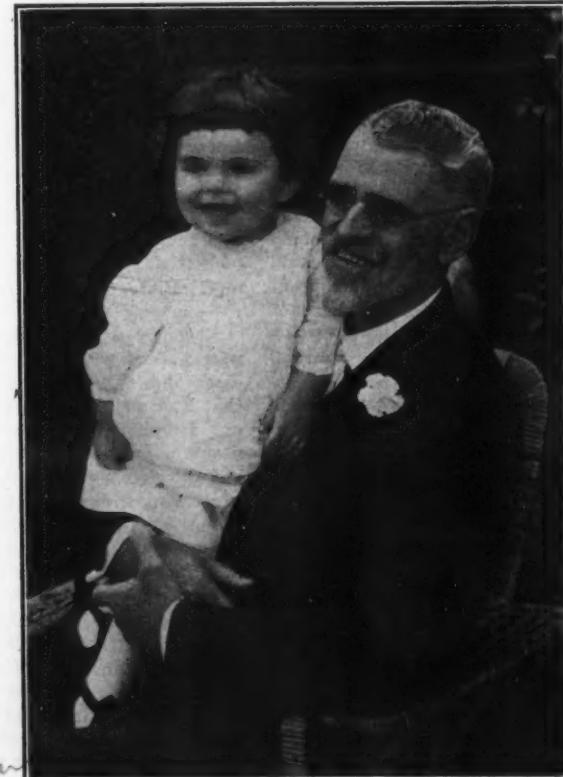
Waitress: "Fine kid, how's yourself?"

Jacksonville, Fla.—Florida farm values increased more than \$17,000,000 during the year ending January 31, 1925, according to final estimates made by the Federal Department of Agriculture. Farm values in 1924 were placed at \$86,199,000 while the figure for 1925 was placed at \$103,550,000.

An elephant passed Adam and Eve as they were naming animals.
Eve: What on earth shall we name that thing?

Adam: Let's name it an elephant.
Eve: But why an elephant?
Adam: Well, it looks more like an elephant than anything I've seen.

Get in the habit of success and stay in it.



The late E. N. Reasoner, noted pioneer horticulturist of Oneco, Fla., who died at his home on Feb. 5, 1926. Mr. Reasoner is shown holding his little grand-daughter in his arms.

State Specialists Give Hints on Farm Work in February

Gainesville, Fla.—February is the time to start making good on new year resolutions and is an important month in farm work, say staff members of the Agricultural Extension Division and Experiment Station, who offer the following suggestions regarding February work on the farm.

Cattle, Horses and Hogs

Keep the mule's and the horse's stable and lot dry and supplied with plenty of bedding to avoid foot troubles. If the pig's coat is rough, change feed and treat for worms; help to keep shoats growing.

Dairying

Breed dairy cows for fall freshening. Whitewash or paint milk house and barn. Eliminate all places in which flies breed.

Poultry

Hatch chicks of the larger breeds this and next month, so they may be well grown before sorehead appears in summer. Feed slightly less scratch feed from this time on until October; make hens eat more egg-producing dry mash.

Field and Pasture

Plant Napier grass. Top-dress oats with nitrate of soda. Break land for spring crops. Scatter 5 to 10 pounds lespedeza seed to acre over pasture and let cattle tramp in; this will increase grazing by June.

Cotton Field

Order calcium arsenate needed later to control boll weevil. Plant seed last two weeks of March, using wilt-resistant and early varieties of upland type, being sure to obtain disease-free seed. Apply at least 300 pounds of a complete fertilizer in order to get best returns. Don't plant over six acres to the plow.

Grove and Orchard

Citrus: Prune out dead wood to assist in controlling melanose, wither-tip and stem-end rot. Spray to control scab with 3-3-50 Bordeaux plus 1 percent of oil. If thrips are abundant in bloom, spray with lime-sulphur and tobacco extracts. Begin cultivating the grove. Put out spring fertilizer. Spray or dust late fruit with sulphur if rust mites are numerous. Graft grapes, persimmons and other deciduous fruit trees. Peach: Spray with lead arsenate to kill curculio as soon as half sepals have dropped. Pecan: Topwork undesirable trees by grafting. Add stable manure. Spray with 8 gallons of lime-sulphur to 50 gallons of water or 6 pounds of bluestone to 50 gallons of water to assist

in scab control.

Garden and Truck

Spray potatoes with 5-5-50 Bordeaux under high pressure to control late blight. Plant only healthy, disease-free seed. Soak cucumber seed in 1-1000 corrosive sublimate for 10 minutes; wash afterward; it will help control angular leaf spot. Plant a few rows of summer squash in cucumber or cantaloupe field to serve as a trap crop for pickle worm. Plant tomato, eggplant and pepper seedbeds. Plant sweet corn, cauliflower, cucumbers, English peas and Irish potatoes.

By purchasing fertilizers of high analyses, a farmer can get a desired quantity of plant food in a smaller quantity of fertilizer. Why pay the freight and bother with hauling and distributing the extra filler in low-analysis fertilizers, when it is plant food you are after?

With spring here, why not plan a community picnic ground where ball games, outings and frolics for the community may be held during the summer?

The scrub bull makes the best quality beef when slaughtered under six months of age.

Miss Mosel Preston, assistant home demonstration agent in Polk County, recently started a class in French cookery at Winter Haven and plans to start a similar class at Haines City. Miss Preston spent the past summer studying in Europe and spent considerable time learning French cookery.

More Florida farmers are buying their fertilizers cooperatively in large quantities this year. They should save money this way.

The good general finds out all he can about the enemy before he attacks. The farmer should find out all he can about the enemies of his crops before he starts his attacks. The Experiment Station and Agricultural Extension Division at Gainesville may be able to help you.

When some of us begin to take as good care of our bodies as we do our automobiles, we will not only add several years to lives, but will find the going a lot easier.

your farm? The tracks of purebred

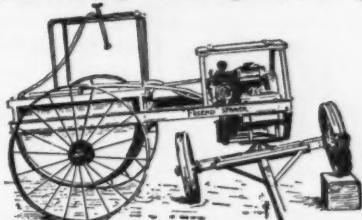
What kind of tracks have you on dairy cows, beef cattle, hogs, and Standardbred chickens lead to prosperity; but the tracks of scrubs lead to the mortgage sharks and bankruptcy.

A deposit in the bank of soil fertility is one of the most paying investments any farmer can make.

Spend Wisely

Don't put your hard earned money into a sprayer until you have thoroughly investigated the sturdy and honestly built "Friend" and become acquainted with its exclusive, simple and serviceable features.

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Single unit motor-pump; straight gear transmission, no belts, no chains; low down; short turn; large wheels—easy draft; adjust packing while pumping at high pressure are just a few of the many practical features that you'll appreciate.

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Tractors In the U. S. A.---Are They Popular?

From Power Farming In Australia

Because of statements which have been made from time to time that tractors were "going out of favour in America," this paper wrote to the United States Department of Commerce for the facts. This is the reply:

"The majority of tractor owners in the United States are satisfied with their machines. It is shown, for example, that 86 per cent. of the present tractor owners on south-eastern farms consider their tractors profitable, and their use, in many cases, has resulted in increased acreage and reduced work animals.

"In the wheat belt it is found that 75 per cent of the farmers having tractors are satisfied with their investment. In this section, the effect of the addition of tractors to farm equipment showed on an average an increase of 50 crop acres, and a reduction of 1.4 months in the amount of regular labour used. 3 1-3 head of workstock, in addition to those on hand at the time of the investigation, would have been necessary if the work had all been done with horses. The tractor owners consider that they need, in addition to their tractors, an average of 3.5 head of workstock, whereas they were actually keeping 8.3 head.

"In the corn-belt it was found that of more than 1200 farmers who purchased tractors in 1917 or before, 81 per cent still use their first machines or others which they have since purchased. The men who had sold their first machines had kept them an average of a little more than three years, and sold them for an average of 490.00 dollars, approximately half their first cost.

"These studies do not show that the farmer has lost interest and faith in the tractor. There is, in many cases, a mistaken idea that the use of tractors is decreasing, simply because the sales of tractor machinery have been smaller in the past two years than in the years immediately preceding. However, the thing which has stopped, in a way, the revival of the tractor business has not been lack of conviction on the part of the farmer that he ought to buy, but has been his financial inability to buy. It is perfectly safe to say that there are few farmers in the country who would not buy a tractor and the implements which go with it, were they financial-

ly able to do so. In other words, it is just as reasonable to say that, because sales of ploughs during the past two years have been much below normal, and smaller than in 1920, for example, the farmers are discontinuing the use of ploughs. As a matter of fact, they have not been purchasing equipment which is not absolutely necessary, not even such an indispensable implement as a plough, when they could possibly avoid doing so and make the old one last another season. This has not been because of any prejudice against ploughs, but because of their low purchasing power in terms of farm equipment.

"There are, of course, people who are interested in discrediting the tractor. It is to their profit to do so, and to encourage the use of horses and other workstock. Such people are tempted to jump at conclusions without giving heed to the facts and underlying conditions. The following is an example of the danger of haphazard conclusions in regard to the use of tractors:

"A business man returning from Canada about two years ago stated that he had travelled over 2,000 miles, by rail and automobile, in Canada. Agricultural conditions, equipment, and crops were closely studied, he claimed. He stated that summer fallowing was in full swing, but that all outifts seen in the fields were horse-drawn, except sixteen. He said that he had gathered from reliable sources that out of every one hundred oil or gas tractors in these provinces (Prairie Provinces) not more than five had been used in field work during the year. According to this gentleman, then, 95 per cent of the tractors in these provinces of Canada were standing idle. This matter came to the attention of a prominent implement manufacturing company, which addressed a questionnaire to 5000 tractor owners in these provinces, with the following results: Of those who replied, more than 85 per cent stated that they had used their tractors during that year. Of the 12 per cent who said 'No,' not one had any fundamental fault to find with the tractor as a losing investment. The reasons for not using the tractors were almost universally the high price of oil and low price of horse

feed. Of the 12 per cent stating that they had not used their tractors, fully half stated that they would use their tractors later in the year. Of those who had used their tractors in that year, 93 per cent listed field work (ploughing, discing, and brush-breaking) as the work done. The yearly repair expense varied from 5.00 dollars to 50.00 dollars, averaging 15.00 dollars. The average life of the tractor was stated to be ten years.

"These reports refer to the summer of 1921, which was, in many ways, an exceptional year in that region. Many of the provinces had a large oat crop, which could not be disposed of at fair prices. Horse feed was cheap; horses were plentiful, cheap, and with no market for the surplus; money was scarce on account of the drop in prices, and the banks were tied up to a considerable extent; and fuels were high-priced. For these reasons many farmers used horses, not, because they preferred to, but because they had the oats and the horses which they could not sell, and to avoid an outlay for fuel and oil for a tractor. This shows that, even under what might appear to be unfavourable conditions, the majority of farmers still used their tractors in fact preferred to use them. I mention this case at such length because it is more than possible that the propaganda going on in Australia is an echo of this, and similar cases of propaganda which have occurred in North America. Many more or less similar instances might be quoted in the United States, where such allegations have been successfully refuted by the advocates of the tractor.

"To introduce another form of traction for farm equipment than that provided by mules in Missouri, the home of the mule, might appear to be somewhat similar to taking coals to Newcastle. However, the following illustration will show the results which have been achieved in Missouri and have demonstrated the superiority of the tractor to the mule. It has been found that two men and two tractors will plough more land in a day than four men and sixteen mules with gang-ploughs. In one particular instance, the cost of ploughing with four men and sixteen mules was 14.60 dollars a day, while with two men and

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two tractors the cost was 10.50 dollars a day, a difference of 3.10 dollars per day. The cost per acre to plough with the four men and sixteen mules was 1.36 dollars, while with the two men and two tractors it was 75 cents per acre. The total cost of the sixteen mules, their harness and ploughs, exceeded the cost of the two tractors and the tractors did better work. Then, of course, when the ploughing is finished, the tractors are in the shed and there is no expense and upkeep, while the sixteen mules have to be fed and cared for.

"The tractor has one very great advantage over animal traction in that it can be used very effectively for belt work machinery.

"In addition, the tractor saves time, and can always be used when needed, gives a better quality of work, saves man labour, and, undoubtedly, will help to promote a higher standard of living in farming communities. The time has not yet come, however, when the tractor will replace the horse entirely. Many tractor-owning farmers have retained some of their workstock, but practically all of the farmers have decreased the number which they keep.

"Undoubtedly the tractor has come to stay, and will be used in increasing numbers in this country. The slump in the sale in tractors in this country was due, as mentioned above, to economic conditions, and not to prejudice against the tractor, nor to a reversion to animal traction. It must be remembered that during the war period and immediately there-after, there arose an unnatural condition which resulted, among other things, in an oversale of tractors, this being due to the high price of agricultural commodities, and an urgent demand for increased production. Furthermore, the tractor has suffered equally with other farm machinery and all other commodities purchased by the farmer, which was due to a tremendous decrease in the price of agricultural commodities."

SOME GLIMPSES OF THE SOUTH FLORIDA FAIR

Continued from page 14
exhibits of pecans. The Alachua County stereopticon views hardly ever failed to get a pause out of passersby. Madison County had some good tobacco shown.

The cotton exhibit of the Boy's Club Department attracted a great deal of attention and comment. It was a surprise to see the number of people interested in seeing stalks of cotton with open bolls, as well as the lint and seed displayed separately.

Twenty-three

Boys' and Girls' Poultry Clubs entered some outstanding birds in the poultry show. This poultry show was certainly an eye opener from quality standpoint as well as an ear-filler from the noise standpoint.

Products of the home were displayed in very interesting and attractive ways. The canned goods shown were enough to make any man's mouth water for a taste. The tropical home pantry from Palm Beach County, the splendid canned goods rack from Pinellas, the LeBelle High School sewing department products in Hendry, the varied home products from most of the other counties, as well as the state home demonstration booth, were all very attractive and full of interest.

One thing that could hardly have failed to impress a visitor to the livestock department was the scarcity of Florida animals. There were some splendid animals present, but, sad to relate, most of them came from out of the state.

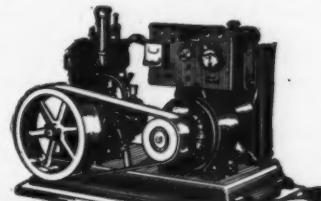
Eighteen counties were represented in the Negro building, 16 of the exhibits being largely the result of work by the local Negro agents. These county exhibits, together with the exhibit of the A. & M. College, and a number of other Negro schools of the state, were all very good and showed that some fine work is being done by the colored population of the rural parts of the state.

COUNTY AND STATE FARM EXTENSION WORKERS MEET DURING THE TAMPA FAIR

County agents and extension workers attending the South Florida Fair met for a conference Wednesday Feb. 10, and discussed policies and problems of the work. O. B. Martin, field agent for the Southern States with the Extension Service of the United States Department of Agriculture met with the Florida workers and discussed their plans with them.

Among those attending the conference were A. P. Spencer, vice-director

of extension, H. G. Clayton, district agent, and J. Lee Smith, district agent, all of Gainesville; and all of the county agents who were present at the fair.



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THE CENTER OF TAMPA

**PLANT IMMIGRANTS MAKE
GOOD IN FLORIDA'S
WARM CLIMATE**

Continued from page 17

ida. Numerous other introductions have been made and several fine types have originated within the state, so the avocado is well on its way to recognition as an important food crop.

The avocado tree is not so handsome as the mango and usually has a somewhat bedraggled appearance in winter time. It is evergreen, blooms in March and April, and fruits from July to January, depending on the variety. Late fruiting varieties are much in demand. The avocados vary greatly in size, shape, color and quality. Varieties like the Pollock may weigh as much as 50 ounces; Trapp, a native of the state of Florida and one of the best, runs from 18 to 28 ounces in weight. The Trapp, which may be taken as a typical round avocado, is like a big green croquet ball. The skin is about one-sixteenth of an inch thick, very firm and tough.

A cross-section reveals the firm yellow flesh making up over one-half of the weight of the entire fruit. In the center is one large seed which easily slips out, leaving just the right kind of receptacle for salad dressing, vinegar, salt, or both. Our favorite way of eating the avocado is to take it right out of the shell, using just a little salt to bring out the fine flavor.

There are three distinct races of the avocado—West Indian, Guatemalan, and Mexican. The first is tropical and will stand but little frost. The second is more hardy and, as a rule, gives fruit of the best quality. The third, or Mexican, is the hardest of all but the fruits are usually thin skinned, small, and more suitable for local use. Then there are some hybrids or "crosses." The thick round shelled avocados are good shippers and are found in many of our northern markets. The avocado has a great future in Florida and now that the state is filling up so fast with people there ought to be a big local demand for the product. As an article of diet it is to be commended, for it can be made to take the place of some of the heavier meat fats, providing energy in a very desirable form.

Other Immigrants

The department has been interested in the introduction of China wood oil or tung oil trees for more than 10 years. Many thousands of trees have been grown and distributed, with the result that an im-

THE CITRUS INDUSTRY

portant industry is starting in the central portion of the state. This effort bids fair to be a commercial success, another illustration of how plant immigrants are utilized.

Now we must condense into a paragraph some reference to other promising new and little-known immigrants, such as the papaya, or melon fruit, which grows on an annual non-branching tree. Papaya trees have been known to produce 2,000 fruits. The flesh is like a rich cantaloupe but has a taste peculiar to itself. As a breakfast fruit it is highly prized, especially as the flesh is rich in pepsin. Carissa, from Natal, S. Af., is a beautiful scarlet-fruited shrub. The fruits of the carissa may be utilized like cranberries. The Surinam cherry, a prolific sprightly fruit that makes good pies and fine jelly. Guavas of many kinds may be grown almost anywhere and constitute one of the best of the jelly and home domestic fruits. Pomegranates of Biblical fame are also grown. Bananas, suitable for garden and backyard culture. Strychnos, or the Natal orange, a fruit with a hard shell and an aromatic juicy pulp. Figs of many kinds. The lychee, noted all over south China for its delicious fruits which have translucent flesh and a very sprightly taste, resembling a well-made lime-ade.

So, for one who loves nature and wants to enjoy to the full one's own handiwork, there is an endless field in Florida. A bit of land, two or three choice mango trees, a like number of avocados, clump of bananas, a square rod of tropical yams, a half dozen papayas and a like number of chayotes, an orange tree or two, and a couple of grapefruit trees certainly sound like home sweet home.

Raising crops is something like a battle. The farmer who can fight his enemies the best wins. Get ready now.

A legume not only increases the production of crops which follow it in rotation, but furnishes a valuable feed in itself.

A brush and can of kerosene are good tools to loosen dirt and rust, so that bearings may be properly adjusted and bolts and nuts tightened.

Cattle fever tick eradication in Florida will bring about two good results. It will eliminate one of the worst pest known to cattle, and it will enable watermelon growers to ship melons into Georgia bedded in native pine straw.

February, 1926

Enough highways to circle the earth, 24,000 miles in all, are scheduled for construction in the United States during 1925 by various state highway departments. Good roads are coming to be a reality in all states of the Union.

We're more than satisfied. Fear of a stinging sunburn is as nothing compared to the haunting dread we used to have that the furnace might have gone out and that the pipes were frozen.

If speed is the watchword of the century, then it is only natural that speed cop is the cussword.

We'd like to see a good, old-fashioned blizzard and snowstorm again—yes, we would, in the movies.

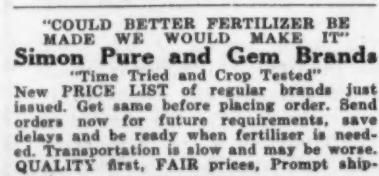
Two men fell into a conversation at a dance. Said one: "Say, I wonder what's the matter with that pretty little dame over there? She was as sweet a little petter as you'd want to see an hour ago and now she cut me dead. I wonder why?"

"I think she sees me. She's my wife."

AT THE RED GAP WEDDING

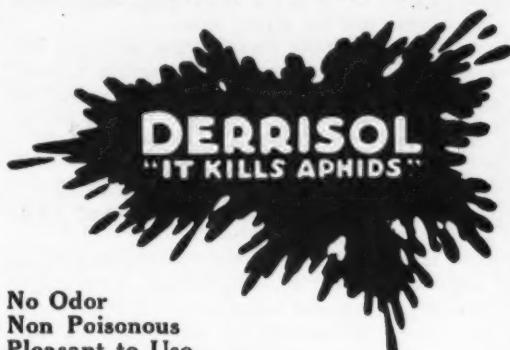
Preacher—Who gives this woman away?

Wild Rose of Red Gap—I'll shoot the first guy that speaks.



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Does Not Require Soap
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The only known control for fungous
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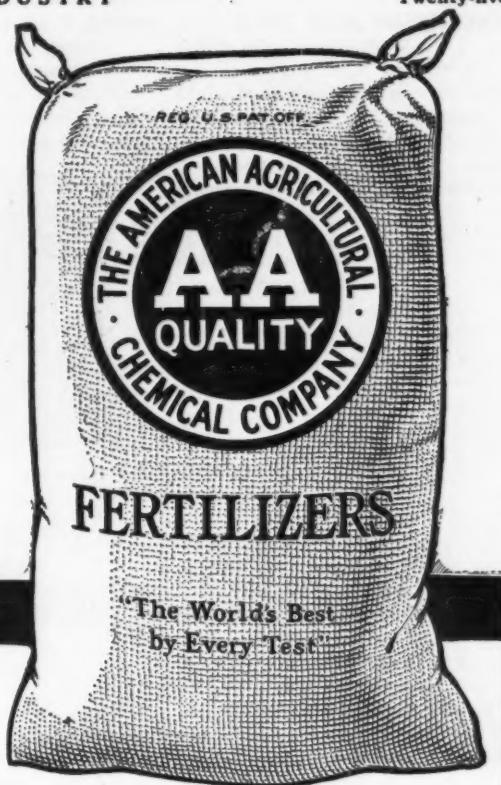
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Citrus trees are so valuable and have
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sure of proper fertilization and the big-
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Special Citrus Fertilizers

These fertilizers are strictly "AA Quality."
The plant foods they contain are
exactly those needed by citrus trees, both
for growing and bearing fruit.

These plant foods are not only right,
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"AA QUALITY" FERTILIZERS

Manufactured by

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TENNESSEAN SEES TRUE WORTH OF FLORIDA

Continued from page 19
has not been as profitable as it might have been. Yet, last year, with a loss in volume of 25 per cent of the crop, bearing groves in the state averaged, according to the report of commissioner of markets, \$289 per acre. This in the face of the fact that California fruit in competition reaches by water any port on the entire eastern seaboard at a rate of 65 cents per hundred, whereas by rail it costs Florida growers 65 cents to Norfolk and \$1.65 to New York.

* * *

Significant also in Florida's signal success in dealing with the tax problem. Oddly enough the writer recently overheard two supposedly intelligent gentlemen discussing with real gravity—the great burden in taxes which Florida would assuredly assume because of the vast programs of public improvements which it had undertaken. The gentlemen were apparently ignorant of the fact that Florida has, quoting Peter O. Knight before the recent investment bankers' convention, no severance tax, no income tax, no corporation tax, no corporation stock tax, no inheritance tax, no intangible tax and no franchise tax, the only means of raising money for state uses being by occupational tax and ad valorem tax upon real and personal property. Also, that its \$6,000,000,000 of assets are assessed at but \$550,000,000, less than 10 per cent of their real value, that it owes not 1 cent of indebtedness, and that it has \$7,000,000 cash in bank.

Nevertheless, in the Floridians themselves, is to be found Florida's greatest asset. Apropos of this fact are the following incidents.

"If," said a Tennessean in my presence, "Maj. Fiske's dream for the development of the Tennessee ever comes true, this will be a very rich country." Then, rather terrified by a display of optimism, he added with an indulgent smile. "Who knows, our grandchildren may really see this happen."

"When," said a Floridian to the writer recently, "the government has completed and put in operation its plan for the development of the Tennessee river and its tributaries, the valley of the Tennessee will become the richest in the world."

History, in fact, reminds us that not in location, topography or accessibility, not in rich mines or productive soil, not in kindly climate, nor indeed in any other natural resources but in the courage and the faith and the mental attitude of its people may the future of a country be accurately

THE CITRUS INDUSTRY

read.

Thinking people are foolish to deprive themselves of the opportunities existing in Florida or elsewhere simply because of the opinions of other people who mislead through ignorance or design. The facts are easily available. Each one interested should seek them out and form his own opinion. It must appear, however, to any open mind that a state so easily accessible to so large a population, possessing such salubrious climate, such productive soils, such vast expansion in railway and road building, such great construction programs in concrete and steel, such unexampled pouring in of the wealth of brains, as well as money, from the four quarters of the earth, should enjoy, at least so long as the rest of the world is prosperous, almost unequalled progress and staple growth.

RELATIVE VALUE OF FUMIGATION AND SPRAYING DISCUSSED

Continued from page 15
no ax to grind. All I am driving at is to keep down cost in citrus culture to a minimum. So after watching the most popular spray used in California for some time I came to the conclusion to try it out at Rancho Glen Haven. Just one spraying did the work for scale, whitefly and all other pests. One good spraying certainly did as good a job as any fumigation could do. Now, since this is the case, then why go to the much greater expense of fumigation?

For once I am happy to say I am free from all pests, so I am not worrying at all about my grove enemies. My spraying bill last year was almost nothing. Though I did not spray as soon as I should as regards the round oranges as some of the rust mites had gotten in their work before I sprayed but no more showed up after spraying. But in my tangerines I caught them in time and I cannot conceive of brighter and prettier fruit than I have. I believe the editor of The Citrus Industry will bear me out in this last statement.

Now if I can achieve such results through spraying, why should I go to the burdensome and expensive trouble of tents and fumigation? And the answer is, why?

I did not have a leaf burned or a fruit spotted last season so I am going to experiment in different ways this year. Now as I have said I have kept a watch on this spray in California for sometime before trying it out and so it seems to me I have found a good thing and when I do I like to pass it on and so lighten the burdens of others. But it must be

February, 1926

applied before the spiders or rust mites get in their work for no amount of spraying afterwards will eliminate the injury done.

Yours for economy in citrus culture as well as the selling thereof. This is slogan of the rancher of Rancho Glen Haven.

INNOCENT APPEARING SHIPMENT OF PLANTS CONTAINED BAD PEST

Argentine ant

An instance of how the State Plant Board affords protection to the agricultural industries of the State and, incidentally, to all citizens as well, is found in the results of an inspection recently made by J. C. Goodwin, nursery inspector of the Board. Mr. Goodwin inspected a shipment of plants, consigned to a firm at Sanford, and found the shipment to contain living Argentine ants, a pest not known to occur in Florida.

The Argentine ant is one of the most pernicious of household pests. In localities where it becomes established it quickly increases to millions, invades stores and houses in large numbers and gives its attention to sugar, sweets, cakes, fresh meats and nearly all food materials, rendering these very undesirable for use as food. It will even enter the coldest refrigerators and exhibits an uncanny ingenuity in getting at food supplies. Even one's bed is sometimes invaded by the ants, with very interesting consequences!

These ants also care for scale-insects and mealy-bugs on trees and shrubs, resulting in rapid increase of the latter with the consequent death of many plants—unless the owner incurs heavy spraying expense to offset the damage.

The Argentine ants are very fond of raw eggs and in infested regions usually succeed in driving all sitting hens from the nests, much to the annoyance and loss of the poultry owner. Beekeepers find it practically impossible to pursue their calling when this ant is present, as the ants not only steal honey from the bee-hives but actually drive out the bees themselves.

Sanford and, in fact, all of Florida can be glad that the Plant Board's vigilance prevented this particular shipment of trees from coming on to Sanford with its concealed cargo of Argentine ants.

Vocational agriculture in the high school helps train Florida farm boys to be better farmers when they grow up. If your school has such a course already, help boost it. If not, begin plans to have it added next year.

CITRUS COMMENTS

Continued from page 7

ter of keeping records. Have a fair sized record book so that it will not be crowded. When you fertilize the grove put down the date, amount per tree, analysis, what the fertilizer was made from, cost, color and condition of the trees, whether the ground was dry or moist, how long since the last rain, date of first rain after fertilizing, how the fertilizer was worked into the soil or whether it was worked in at all.

Regarding other things put down the dates of cultivation and what the purpose was such as working in fertilizer or cover crop or for conserving moisture. Also put down the tool used and the time required.

Spraying dates should be put down material used, number of gallons, time required, number of trees sprayed and later the results.

Other things to keep track of are pruning, picking fruit, planting young trees, a record of the weather week by week, and any other items which may occur to you.

This may look like too much work but if it pays to have a grove it pays much better to know what you have done and what you are doing so that you may intelligently plan what should be done next. If your grove is successful and the trees are in good shape you can, from your records, figure out how it was done and continue in the same way. Should your trees develop some trouble you have a record to fall back on and can come a great deal closer telling what caused the trouble than you could without any such record.

Rust Mites

If the weather becomes dry be sure to watch for rust mites on late fruit. The rainy weather seems to have enabled the fungus to keep them in check. Dry weather might allow them to increase rapidly.

King Canute vainly tried to stop the onrushing ocean tide. Certain knockers are striving to stem the tide of Florida prosperity. Obvious deduction: Let's call all Florida knockers Canutes.

Heard In The Coontown Gym

"Ah shuah does pity you," said a colored pugilist to his opponent as they squared off. "Ah was bohn with boxin' gloves on."

"Maybe you was," retorted the other, "and ah reckon you's goin' to die de same way."

CHEW'S THE LESSER

The gum-chewing girl and the cud-

THE CITRUS INDUSTRY

Twenty-seven

chewing cow,
There is a difference, you will allow.
What is the difference? Oh, I have

it now,
Its the thoughtful look on the face
of the cow.



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**It gives you
Extra
Insurance Against Aphids**

Take advantage of this 2-fold control. When you spray with "Black Leaf 40" you kill Aphids and Thrips, not only by direct contact (or hitting) but also because of the "gassing" effects of the volatile Nicotine fumes which arise through the trees. Likewise, when you dust with Nicotine Dust, insects are killed by actual contact of the dust with their bodies and also by the powerful nicotine gas.

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Black Leaf 40
40% Nicotine

Citrus Trees

Between 400,000 and 500,000 Buds

in all sizes of:

Valencia,	Tangerines,	Marsh Seedless Grapefruit
Parson Browns,	Kings,	Silver Cluster "
Pineapple,	Satsuma,	Duncan "
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on sour orange or grapefruit stocks.

When you have inspected and priced our Buds, you will then know where to place your order to the best advantage, and we believe it will be with us.

Lake Nursery Company

LEESBURG, FLA.

Isle of Pines Fruit and Vegetable Shipments from Isle of Pines

The grapefruit crop—the principal industry of the Isle of Pines, Cuba—has proven the most profitable in the history of the Island, states Mr. S. Talbott, Vice Consul, Isle of Pines (Nueva Gerona), Cuba, in a report received in the Department of Commerce on the December 1925 quarter.

Exports of grapefruit totaled 37,000 crates during the December 1925 quarter as compared with 65,000 crates during the same period of 1924. However, exports of grapefruit from the Island to the United States for the 1925-26 crop year aggregated 176,000 crates up to December 31, 1925, while 200,000 crates were shipped out during the corresponding period of the 1924-25 crop year.

When Florida grapefruit begins to arrive on the markets of the United States in October, the price for the fruit is reduced to a point where grapefruit from the Isle of Pines, subject to import duty into the United States, cannot compete successfully with the American product.

Shipments of grapefruit from the Island to England for the 1925-26 crop year aggregated 25,000 crates up to December 31, 1925, and Mr. Talbott states that the shipments of from 3,000 to 5,000 crates monthly would probably be materially reduced after December (1925) as the trees on the Island are being cleared of the present grapefruit yield to make way for an early bloom of another yield. Mr. Talbott states that local fruit shippers of the Isle of Pines claim that Island grapefruit sold in London during the 1925-26 season at from \$3.00 to \$10.00 a crate.

The good prices received for Isle of Pines grapefruit during the past two seasons have encouraged the growers to place greater confidence in the fruit as a revenue producer adds Mr. Talbott, and groves are being carefully tended neglected trees cultivated back into bearing. No new groves are being planted, however.

Winter vegetables, grown in the Isle of Pines (Cuba), and shipped to New York from November to May, inclusive, are rapidly becoming more important as an export; in fact, they are approaching grapefruit as a revenue producer for the Island.

Shipments of vegetables from the Island began in November 1925, which was several weeks earlier than usual; the total for the December 1925 quarter was more than 13,000

crates as compared with 1,500 crates in the December 1924 quarter. With the continuance of satisfactory growing conditions in the Island, it is estimated by the trade that a total of 200,000 crates will leave the Island in the 1925-26 export season as compared with 90,000 crates in the 1924-25 shipping season. Peppers and eggplants predominate in the vegetable shipments, with lesser amounts of cucumbers, tomatoes, okra, and squash. Peppers and eggplants are bringing from \$3.00 to \$6.00 a crate on the New York market, according to local forwarding agents. Cucumbers, on which the largest profits are being realized, have sold as high as \$10.00 a crate, adds Mr. Talbott.

Seventy-five thousand crates of vegetables were shipped from the Isle of Pines (Cuba) during the 1922-23 season and 72,000 crates in 1923-24. Approximately three-fourths of the 1924-25 season's shipments were peppers but it is estimated by the trade that there will be a large increase in the proportion of eggplant to be shipped from the Island during the present (1925-26) season.

MILLER COMES TO FLORIDA TO WORK ON INSECTICIDES AND CITRUS APHIS CONTROL

Miller, Ralph L.

Gainesville, Fla.—Ralph L. Miller of Wooster, Ohio, comes to the State Plant Board as assistant entomologist to work on different insecticides and citrus aphid studies. His work, which began on January 15, is under the supervision and with the cooperation of J. R. Watson, entomologist of the Florida Agricultural Experiment Station. Mr. Miller will be stationed at Lake Alfred, where the Experiment Station maintains a citrus sub-station.

Mr. Miller is a graduate of Ohio State University, having received both his bachelor and master of science degrees there. He specialized in entomology. He has also had a summer of work at the Ohio Experiment Station, working on scale spraying experiments and investigations of insecticides used in against potato insects.

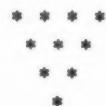
Mr. Miller is spending a few days in Gainesville acquainting himself with available literature bearing on his work, and also in conference with entomologists of the Experiment Station and officials of the State Plant Board.



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Will Make A Difference In The Appearance Of Your Trees And In The Quality Of Your Fruit



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for
Quality Fruit

Citrus Aphids

Push New Growth on Citrus to get Ahead of Aphids

From Polk and Orange counties south the citrus trees are pushing out new growth rapidly. It is very important to get this new growth well grown before the aphids become abundant, says, J. R. Watson, entomologist of the Florida Experiment Station. Due to the prolonged cold of the past winter the aphids are now scarce, but with the advent of the warm weather they may be expected to multiply rapidly. A severe frost has never occurred after February 10 in the main citrus belt of Florida, so it would seem that it is now safe to push the growth with the object of getting ahead of the citrus aphid. This may be done by liberal applications of fertilizers at this time and the cultivation of the groves. It would seem advisable that growers start these measures at once.

A survey of the citrus groves of the state shows that twigs on which the leaves were badly curled last season bore no fruit. For the production of a good crop of fruit it is essential that the early spring growth be protected from aphids. It is especially important that it be protected during the early stages of its growth. After the foliage is half grown it will stand a surprisingly heavy infestation of aphids, but in the very early stages of its growth it is easily injured.

If a good proportion of the spring growth can be obtained before the aphids become abundant it will not only insure the setting of the fruit but will have a tendency to hasten the maturity of the foliage after the spring flush of growth. If any considerable amount of the first flush of growth is prevented from maturing properly, the tree will be putting out new growth throughout the spring. This will afford a constant food supply for the multiplication of aphids.

It is also important that isolated colonies of aphids which may appear on the trees should be completely destroyed. If the colonies are mostly out on the ends of twigs, as is apt to be the case on young trees at this time of the year, the quickest way of dealing with them is to dip them in a solution of nicotine sulphate or an extract of derris, 1 to 800 or stronger. If nicotine sulphate is used, add 3 or 4 pounds of soap to each 50 gallons of water.

When the aphids appear on the stubby growth near the center of

the tree it will be necessary to either spray them with some good contact insecticide, such as those mentioned above, an oil emulsion or lime-sulphur or to dust them with nicotine sulphate-lime dust.

Mr. Watson thinks that if growers will do their best to push the spring growth and, at the same time, keep down aphids in their groves for a few weeks they may be able to get the new growth by with very little spraying or dusting. This would be a great saving as spraying and dusting operations are expensive.

FLORIDA CITRUS CROP ESTIMATE LOWERED

Commercial shipments of Florida citrus fruits are now estimate by the United States Department of Agriculture at 14,000,000 boxes, of which it is estimated that 8,500,000 boxes will be oranges and tangerines and 5,500,000 boxes grapefruit.

This estimate for oranges is 2,200,000 boxes below the estimate issued in December, and 2,500,000 below shipments from last year's crop. The present estimate for grapefruit is 800,000 boxes less than the December estimate, and 2,700,000 boxes below last year's shipments.

The total crop of California oranges is still estimate at 20,400,000 boxes compared with 18,100,000 picked last year. No attempt has been made to estimate the commercial shipments this season from California because in that State the quantity that will be moved by motor truck is uncertain. California is expected to prouce also about 400,000 boxes of grapefruit compared with 387,000 boxes picked last year.

The present estimates for Florida are based on reports from growers regarding the quantities of fruit picked and to be picked in their own groves; estimates of growers regarding production per tree in their respective localities, and growers' estimates regarding the percentage of this this season's shipments moved to February 1. No corresponding estimates have been issued for previous years.

A "Dear" Half-Crown's Worth
She: I'm going to sell kisses at the Charity Bazaar. Do you think \$1 each is too high?"

He: "Oh, no. People expect to be robbed at bazaars, anyhow."

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Come

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Ask For Our Complete
Price List

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Sanford - Florida

How to Produce Russet Fruit

By W. W. Yother

For many years it has been known that rust mites cause Florida oranges to become russet. It is also well known that sulphur in any form will kill these mites and thereby prevent the blemish known as russet, or when severe as sharkskin. This pest is perhaps the most easily killed of any creature attacking horticultural crops. It is so sensitive that the particles of sulphur do not have to come in contact with the mite itself to produce death but it is killed by the fumes of the sulphur. The timely use of sulphur will produce bright fruit or naturally colored fruit.

It is not generally known however a grower may produce all russet fruit at will. As a general thing not more than from 30 to 60 per cent of the average crop is russetted by the rust mite. There is a fungus disease that attacks rust mites a few days after the beginning of the rainy season. I have seen this fungus in the rust mites' bodies many times. As yet it has never been described by scientists. All fungi are extremely sensitive to Bordeaux or copper sprays. The usual recommendation for controlling dis-

eases is the use of 3 pounds of bluestone and 3 to 4 pounds of lime to 50 gallons of water. This is unnecessarily strong however to prevent the rust mite fungus from attacking rust mites. For this purpose use not more than 4 ounces of bluestone and 4 ounces of lime to 50 gallons of water or 1 pound each to a 200 gallon tank. This spray should be applied about June 10 to 15 when the mites are abundant. Do not apply sulphur if this weak Bordeaux is used to make the fruit russet. I think one good spraying will suffice to produce a 100 per cent crop of russet fruit. There will be very little scale follow but a sharp look-out should be maintained so that if the scale does become abundant a spraying with oil emulsion can be given.

It should be stated that russet fruit are from 1 to 2 sizes smaller than bright fruit, they will not carry so well to the market, they lose their water content as spring advances and are never used for decorative purposes. We do not recommend the production of russet fruit but we thought that since these fruit are being ad-

vertised the growers should know how to produce the goods as advertised.

KEEP A-GOIN'!

S'pose your're out of every dime,—
Gittin, broke ain't any crime.
Tell the world your're feelin' fine!

Keep a-goin'!

When it looks like all is up,

Keep a-goin'!

Drain the sweetness from the cup—

Keep a-goin'!

See the wild birds on the wing,
Hear the bells that sweetly ring,
When you feel like sighing—sing!

Keep a-goin'!

The Good Samaritan, Modern Style

"Hey, you!" he yelled to his victim. "While you're under there, take a look at my new four-wheel brakes They didn't work."

THE BONES OF COLUMBUS

Rastus—"I done read in de paper yistiddy where dey has found Columbus's bones."

Sambo—"Oh, my lawdy. Ah never knew dat he was agamblin, man!"

Florida Fruits and Flowers

A Monthly Magazine devoted to diversification in fruit growing and to home and civic ornamentation.

The kind of a magazine you will enjoy in your home. It tells of the different kinds of fruits which can be successfully grown in Florida and it aids with helpful suggestions about ornamentals and flowers for your home or community.

FLORIDA FRUITS AND FLOWERS costs but \$1.00 for twelve months. Pin a check or a dollar to this notice and mail to

Florida Fruits and Flowers

Bartow, Fla.

Let Us Supply Your Printing Needs

For Grove, Packing House, Counting Room or Factory. Our equipment is complete, our service prompt and satisfactory and our prices reasonable.

Bartow Printing Co.,

A. G. Mann, Mgr.

Bartow, Florida

Owned and operated by The Citrus Industry

Tent Fumigation Destroys CITRUS PESTS



THE only entirely effective method of controlling citrus pests is by thoroughly fumigating the groves under tents. There is no other way of getting 98% to 100% kill of scale insects, white fly, rust mites and citrus aphis with one operation.

CYANOGEN REG. U. S. PAT. OFF. CITRUS DUST

is the most effective and economical material for citrus fumigation. It is a combination of Cyanogas and Sulphur, which on coming in contact with the air, gives off hydrocyanic acid gas, the most powerful insecticide known to science. It is positive in action and certain in results.

Cyanogas Citrus Dust is endorsed by State authorities for fumigation against citrus insects in Florida. Do not fail to investigate this remarkable insecticide.

Demonstrations are now being held in the Florida Citrus Belt. Write us for the date and place of the one to be held in your neighborhood. Tell us about your problems; our entomologists will be glad to discuss them with you, and tell you how you can use Cyanogas Citrus Dust for profitable results.

Ask for free leaflet 208, which gives full information.

AMERICAN CYANAMID SALES COMPANY
Incorporated

Union Terminal Warehouse
Jacksonville, Fla.

511 Fifth Ave.
New York City

**BIRDS-EYE VIEW
OF THE ORANGE AND
GRAPEFRUIT BUSINESS**

Continued from page 8
reminds me of Jack who said to his sweetheart, "You look sweet enough to eat." She answered coyly—"I do eat—where shall we go?"

But to return to our subject—after the fruit has been graded for looks and sized, each box contains similar looking and equal sized fruits. They could not be packed economically and attractively without bringing about this uniformity. Each size has its special way to be packed. It all means nothing to the consumer, but does permit the retailer and wholesaler supplying his trade with the size and grade that he can sell most readily to his special customers. It is because people go so generally on looks in buying rather than inside quality that the Bright oranges customarily command more money than the Goldens or Russets, although one grade eats about as good as another. There is one thing in which the customary judgment of the customer corresponds with the real merit of the fruit,—the thinner the skin, the more fruit inside for the size and usually it is more juicy and better eating in every way. It is the recognition of this fact that makes the Florida orange so desirable to the customer.

I want to ask how many have had any Tangerines this year. You know the tangerine don't you—that little orange with the brilliant reddish orange, color—the skin is loose and peels so readily and it is so wonderfully pungent and delightful to eat. Florida ships between the months of November to March about a thousand cars every year. We will soon be through shipping our tangerines, so don't miss this pleasure as well as that of enjoying with us our wonderful grapefruit and oranges.

It has been proposed that we discuss during my weekly Radio Talk the following subjects:

February 16th—"What Is Necessary To prepare Citrus Fruits for Market." February 23rd—"Why the Consumer Pays So Much and the Grower Gets So Little."

March 2nd—"A Straight Talk to the Home Buyer of Citrus Fruits.

It is the purpose of these talks to bring about a friendlier, closer understanding between consumer, middleman and producer. We all need to know each other better and if possible understand how the self-interests of each may best fit into the necessary business structure of distribution. I will each time try to be

THE CITRUS INDUSTRY

brief, like the Scotch farmer of many years but of few words, who was on a flying visit to the Jamiesons. "Wull you take a cup of tea, Mr. M'Glasson?" said the kindly Mrs. Jamie son.

"No, thanks, no tea," he replied.

February, 1926

"A cup of coffee, then?"

"No coffee."

"Wul I mak' ye cocoa?"

"No cocoa."

"Why, then, Mr. M'Glasson, will ye have a glass o' whisky and soda?"

"No soda."

**Watson Tells How to Fight
Citrus Aphid in Spring**

The citrus aphid, although not nearly as abundant in the groves as at this time last year, is present in nearly all groves that show new growth, and with the advent of warm weather will undoubtedly multiply rapidly, says J. R. Watson, entomologist of the Florida Experiment Station. Mr. Watson warns growers who use nicotine sulphate-lime dust this year to insist on dust guaranteed to contain at least 3 percent actual nicotine, not 3 percent of 40 percent nicotine sulphate. Some very inferior dust sold last year.

Growers can make their own dusts at a little over half of what was ordinarily charged last year. Mix in a barrel nicotine sulphate and hydrated lime in the proportion of 7½ pounds of nicotine sulphate to 93 pounds of lime.

In answering an inquiry, Mr. Watson suggests the following measures as being helpful in controlling the aphid:

Fertilize the trees in order to hasten spring growth. Do everything possible to rush this growth along, by cultivation, etc. Perhaps a little nitrate of soda would help, but do not give trees a big dose which might throw them into dieback.

Wherever the colonies of aphids are found, they should be dealt with. When on the ends of twigs they should be dipped in a good insecticide. For this purpose use extracts of derris or soap and nicotine sulphate solutions. If there is much growth on the short stubs next to the stems that cannot readily be dipped, use a hand duster with 3 percent nicotine sulphate-lime dust, picking out as quiet a day as possible for the work. Spot dusting works better in the interior of the tree, where there is a little protection from the wind.

If it is necessary to apply both dipping and spot dusting to the trees, try to perform both operations on the same day, so the aphid will not have time to move from one twig to another.

If, however, half or more of the young trees need attention the best

plan is to dust under tents. Make a half dozen to a dozen tents out of muslin cloth, stretched over a framework of wire big enough to go over trees. Paint this cloth with melted paraffin. Leave a hole near the top into which you can put the discharge nozzle of the dust gun. The cloth cover should come down a few inches below the bottom rim of the wire framework, so as to fit the soil more closely than the rim will. The framework can be made of simply a circular wire hoop at the bottom from which four strands of wire go up over the tree and fasten at the top. These fumigation tents can be quickly moved from one tree to another.

For trees over 10 feet tall, one can wait until the infestation gets rather severe and then go in with a power duster on some calm day or night, using nicotine sulphate-lime dust. During quiet weather, when there is no perceptible wind, one can get practically every aphid in the grove, but it is essential that the atmosphere be perfectly quiet. Enough wind to stir the moss on the trees will interfere with the efficiency.

If the grower has not a power duster the next best thing on large trees is to spray them. However, if one depends on spraying he must begin very early in the infestation, before any considerable number of leaves have curled. Use extract of derris or nicotine sulphate and soap. A weak oil emulsion or lime-sulphur solution will do.

THE MORNING AFTER

When Cassidy got drunk his friends took him to his hotel room, covered his body with glue, gave him a coat of feathers from the pillow, closed all the windows, turned on the steam and left him.

When Cassidy came to and caught sight of himself in a mirror he yelled: "Croaked! In hell! And a bird."

"Thou shalt not bear false witness." Certain Northern papers, please remember a Great Commandment.



Meeting Florida's Transportation Needs

Since the end of Federal control in 1920 the Atlantic Coast Line has spent or authorized the spending of \$101,000,000 to enlarge and extend its transportation facilities.

About \$15,000,000 of this amount was for new shops, extensive side-tracks and yards, new stations, warehouses and other facilities and for new lines into undeveloped territory, in Florida.

By far the larger part of the money spent outside of Florida was for improvements that increased the ability of the Atlantic Coast Line to meet Florida's transportation needs.

About \$40,000,000 was for the purchase of new equipment used largely to haul Florida traffic.

In the past three years the Atlantic Coast Line has bought 200 locomotives, 141 passenger equipment cars and 5,058 freight equipment cars.

The Atlantic Coast Line has constructed the only double track, automatic signal equipped route between Florida and the North and East.

Twenty additional miles of double track in Florida and three miles near Albany, Georgia, will be ready for use in a few weeks.

The Atlantic Coast Line offers ten through freight routes between Florida and the West.

Every day this season it will bring into Florida 19 passenger trains with a capacity of more than 3,200 people.

In the past year the Atlantic Coast Line has constructed 60 miles of new yard, side and industrial tracks, with a capacity of 7,500 cars, to provide increased facilities for Florida patrons.

The Atlantic Coast Line has approximately 100 miles of new line under construction in Florida. Construction of 40 additional miles will begin January 1st. These new lines will make possible the development of large areas of land, and will open up new traffic routes.

The Atlantic Coast Line is enlarging its other facilities in Florida as rapidly as conditions permit.

Marked progress toward relieving the traffic congestion is being made by the cooperation of most shippers and receivers of freight in loading and unloading cars promptly. Similar co-operation by everybody using its facilities will aid the Coast Line in its efforts to restore normal service.

Atlantic Coast Line Railroad Company

Wilmington, North Carolina

**SPRAYING RING REDUCES
COST OF EQUIPMENT
FOR SMALL GROWERS**

By Spuds Johnson

Where a number of men in a community have small groves or a few acres of truck crops or are growing any other crop on a limited scale and need to spray but do not feel justified in investing in spraying machines individually, the spray ring will be a help. A spray ring is simply a group of neighbors who have banded together and bought a spraying outfit, dividing the expense, and made arrangements to have the spraying done for all members with the same outfit.

In this way each member gets the benefit of expensive spraying machinery without going to the full expense of buying a machine. He pays only part of the cost of the machine.

It is probably best to have a constitution and by-laws drawn up to avoid confusion, but verbal agreements by responsible people will do. However, written agreements will obviate any future misunderstanding.

The spraying outfit should be in charge of some particular person, who is paid for the work done for each member. Each member generally furnishes the materials to be used on his place also. The spray ring does not reduce the cost of materials or the original investment in equipment.

One great advantage of a spray ring is that through it a grower will often spray who would not do so if he had to stand the total expense of purchasing equipment. This tends to prevent small groves or acreages of crops left unsprayed and acting as infection centers for the community.

We have had a spray ring in our community for two years, and are certainly well pleased with its workings.

AT THE ANIMAL STORE

The sweet young thing entered the office of the fashionable dog kennels young man at the desk.

"I want a pet," she cooed.

"I'd love to," he answered sadly, "but the boss is awfully strict."

* * *

"Yes, sir, I like to stand on a busy corner on a windy day and see the girls get on the street cars. I like to see if there are more girls who have blue eyes than have brown."

* * *

"Yes, the reason I broke off my engagement with that Hotel Cigar Girl was that she was too much of the Clinging Vine Type. Why, she wouldn't even talk to another man. I don't want a girl I'm too sure of."

THE CITRUS INDUSTRY

It might be a hard winter in the North, but we're having a nice summer in Florida.

CLASSIFIED ADVERTISEMENTS

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

REAL ESTATE

WILL EXCHANGE West Texas cattle ranch for unimproved or improved land in Florida. What have you? Give price and full particulars. T. E. Bartlett, 3410 McKinley Ave., El Paso, Texas.

FIVE ACRES and a town lot, all for \$700.00 Biggest bargain in Florida. Certain money maker. We want reliable salesmen to present this meritorious proposition to investors. Sumter Gardens and Bushnell Park lots. Every purchaser highly pleased. Florida Garden Land Company, Box 1759, St. Petersburg, Florida.

FOR SALE—Cleopatra Mandarin seedlings. September delivery, enter order now. Cavendish banana plants and avocado trees. Write for price list. R. E. Skinner, Hillsboro Hotel, Tampa, Florida. May-4.

RANANA PLANTS for sale. Improved Cavendish, Hart, Orinoco, Ladyfinger. Information free. W. E. Boiles, Oldsmar, Fla.

"BOOK OF TRUTH"
For planters of new groves
Is yours for the asking.
Write Today.

OCKLAWAHA NURSERIES INC.
"Pedigreed Citrus Trees"
Lake Jem, Florida

FOR SALE CHEAP—Eleven acres high, rocky citrus land: 4 acres cleared with small house, and large nice bearing orange trees full of fruit. Nicely located near Altamonte Springs, Fla. For particulars write H. A. Lunquire, 41 N. W. 29th St., Miami, Fla.

POLK LAKE NURSERIES

Offer to the grower young trees of standard variety, backed by 30 years of nursery experience and a guarantee which only honest dealing can justify. For full information address A. H. Sloan, Box 413, Bartow, Fla.

WANT TO SELL HALF INTEREST IN FIFTEEN ACRE SATSUMA BEARING GROVE ON HIGHWAY NEAR PANAMA CITY, ROBT. LAMBERT, OWNER, FOUNDATION, FLA.

SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

For Sale—Pineapple land in winterless Florida. \$15 an acre. Almont Ake, Venus Fla:

QUALITY FRUIT comes from Cleopatra mandarin stocks; ask the introducers for prices of all Citrus trees, on this and on other stocks. (42nd year in Citrus nursery, and first growers of Rough Lemon stock.)

ROYAL PALM NURSERIES, ONECO, FLA.

MISCELLANEOUS

FOR SALE—Dairy and stable manure,

February, 1926

car lots. Link & Bagley, Box 664, Tampa, Florida.

WHITE WYANDOTT Cockrels, regal strain—the best in the country, direct from Martin pens. Utility and show birds \$6.00 each; also eggs for hatching \$6.00 per 15. W. A. King, Gen. Del., St. Petersburg, Florida.

UP-TO-DATE BUSINESS STATIONERY PRINTING 1000 20lb 8 1/2 x 11 White Hammermill Bond Letterheads \$3.70. No. 6% White Wove Envelopes \$3.00. Business Cards \$2.60. Samples Free. Moulton Printing Company, 1410-C East 8th. Kansas City, Missouri.

REPOSSESSED player piano may be purchased for small unpaid balance by reliable parties on easy payments. We guarantee this player to be in excellent condition and a very unusual buy. Plenty of good rolls and bench included. M. L. Price Music Co., Tampa & Zack St., Tampa.

SOUTHDOWN SHEEP, White Rocks, Toulouse Geese, Guineas, Angora and Milk Goats, Circular free. Woodburn, Clifton, Va.

AGENTS—Quality Shoes, quick sellers. Big commissions, immediate returns. Repeat orders. Experience unnecessary. Write full particulars. Tanners Shoe, 2011 C St. Boston.

FOR SALE

Remington Portable Typewriter with standard keyboard. Has all advantages of larger machine. Ideal for farm and home use. \$60. cash or sold on easy terms. Remington Typewriter Co., 103 Parker St., Tampa, Florida.

FARM—GROVE—HOME

22 acres large bearing grove; modern two-story, 8 room house, completely furnished on third largest lake in state in thriving town; good roads, church, school; complete line farm implements and tools. P. F. Cloonan, Yalaha, Lake County, Florida.

HIGH BLOOD PRESSURE easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Florida.

Laredo soy beans, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

FOR SALE: Rebuilt Band Instruments from \$5.00 up. Terms if desired. M. L. Price Music Co. State Distributors—C. G. Conn Band Instruments. Tampa.

Wanted AT ONCE few dozen fresh bitter-sour Marmalade Oranges. Price C. O. D.? M. L. Manning, 15 West Chase St. Baltimore, Md.

WANTED to correspond with growers of the Red Guava. Business. M. L. Manning, 15 West Chase Street, Baltimore, Md.

MILLION Porto Rico Potato Plants, \$2.50-1000. W. W. WILLIAMS, QUITMAN, GA.

"A GOOD HAND LENS is necessary to produce good fruit. R. E. Lenfest, Winter Park carries a stock of the best and most practical for the convenience of growers. A good lens saves spraying money. Write for prices."

WANTED—Salesman 30-40 years old. Must be familiar with Florida Citrus insect control. Position involves field work. Box 1254 Citrus Industry.

FARMER AGENTS: Make \$25.00 weekly selling Comet Sprayers. Profitable winter employment. You take orders. We deliver and collect. Commissions weekly. Established 35 years. Particulars free. Rusler Co., Box C-18, Johnstown, Ohio.

EARLY BEARING Papershell Pecan trees, budded or grafted and guaranteed. Great shortage this year. Write for catalog today. Bass Pecan Company, Lumberton, Miss.

We Collect Notes, Accounts, Claims anywhere in world. No charges unless collected. We have collected in every State in Union, Canada and foreign countries. 25 years experience. MAY'S COLLECTION AGENCY, 28 Tinker Building Orlando, Fla.